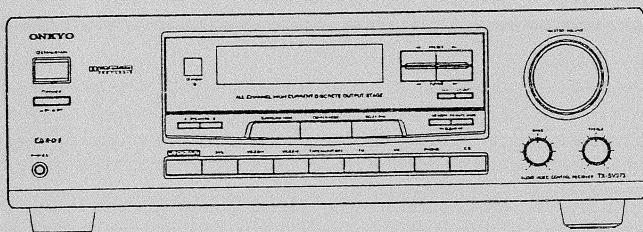


ONKYO® SERVICE MANUAL

**AUDIO VIDEO CONTROL
RECEIVER
MODEL TX-SV373**



Black model

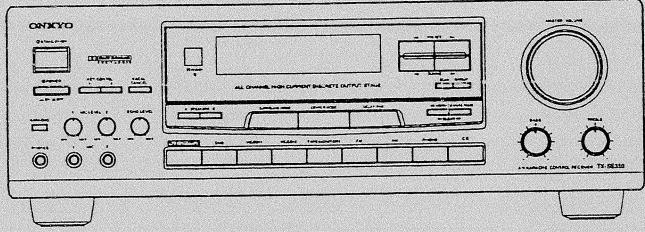
BMDN	120V AC, 60Hz
BMF, BMWT	220V AC, 50Hz
BMWT, BMWR	220-230V/120V AC, 50/60Hz

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY MARK  ON THE SCHEMATIC DIAGRAM AND IN THE PARTS LIST ARE CRITICAL FOR RISK OF FIRE AND ELECTRIC SHOCK. REPLACE THESE COMPONENTS WITH ONKYO PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL.

MAKE LEAKAGE-CURRENT OR RESISTANCE MEASUREMENTS TO DETERMINE THAT EXPOSED PARTS ARE ACCEPTABLY INSULATED FROM THE SUPPLY CIRCUIT BEFORE RETURNING THE APPLIANCE TO THE CUSTOMER.

**AUDIO VIDEO KARAOKE
CONTROL RECEIVER
MODEL TX-SE350**



Black and Golden models

BMWT, BMWR, GMWT, GMWR	220-230V/120V AC, 50/60Hz
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Model TX-SE350 (Separate volume)	
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**ONKYO®
AUDIO COMPONENTS**

SPECIFICATIONS

AMPLIFIER SECTION

Continuous Average Power output (FTC)	50 watts per channel min. RMS at 8 ohms, both channels driven from 20 Hz to 20 kHz with no more than 0.08% total harmonic distortion.
Front L/R channels:	50 watts min. RMS at 8 ohms, driven from 20 Hz to 20 kHz with no more than 0.08% total harmonic distortion.
Center channel:	50 watts min. RMS at 8 ohms, driven from 20 Hz to 20 kHz with no more than 0.08% total harmonic distortion.
Surround L/R channels:	20 watts per channel min. RMS at 8 ohms, both channels driven from 20 Hz to 20 kHz with no more than 0.3% total harmonic distortion.
Continuous Power output (DIN)	
Front L/R channels:	70 watts X 2 at 6 ohms
Center channel:	70 watts at 6 ohms
Surround L/R channels:	30 watts X 2 at 6 ohms
Maximum Power output (EIAJ)	
Front L/R channels:	90 watts X 2 at 6 ohms
Center channel:	90 watts at 6 ohms
Surround L/R channels:	40 watts X 2 at 6 ohms
Total Harmonic Distortion:	0.08% at rated power (Front)
IM Distortion:	0.08% at rated power (Front)
Damping Factor:	60 at 8 ohms (Front)
Sensitivity and Impedance	
Phono:	2.5 mV/50 kohms
CD, DVD, VIDEO-1, VIDEO-2, Multi-CH, Tape Play:	200 mV/50 kohms
Tape Rec:	200 mV/2.2 kohms
Subwoofer Pre out:	1 V/2.2 kohms
Phono Overload:	70 mV RMS at 1 kHz, 0.5% T.H.D.
Frequency Response:	20 Hz to 30 kHz, ± 1 dB
RIAA Deviation:	20 Hz to 20 kHz, ± 0.8 dB
Tone Control	
Bass:	± 10 dB at 100 Hz
Treble:	± 10 dB at 10 kHz
Signal-to-Noise Ratio	
Phono:	80 dB (IHFA, 5 mV input)
CD, DVD, VIDEO-1, VIDEO-2, Tape:	100 dB (IHFA)

VIDEO SECTION

Signal sensitivity and impedance:	1 Vp-p, 75 ohms (DVD/VIDEO-1/VIDEO-2 input, output)
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TUNER SECTION

FM

Tuning Range:	87.50 ~ 108.00 MHz
Usable Sensitivity	
Mono:	11.2 dBf, 1.0 μ V (75 ohms)
Stereo:	17.2 dBf, 2.0 μ V (75 ohms)
50 dB Quieting Sensitivity	
Mono:	17.2 dBf, 2.0 μ V (75 ohms)
Stereo:	37.2 dBf, 20.0 μ V (75 ohms)

Capture Ratio:	1.5 dB
Image Rejection Ratio	
U.S.A. & Canadian models:	40 dB
Other area models:	85 dB
IF Rejection Ratio:	90 dB
Signal-to-Noise Ratio	
Mono:	76 dB
Stereo:	70 dB
Alternate Channel Attenuation:	55 dB
Selectivity:	50 dB (DIN)
AM Suppression Ratio:	50 dB
Total Harmonic Distortion	
Mono:	0.15%
Stereo:	0.25%
Frequency Response:	30 Hz ~ 15 kHz, ± 1.5 dB
Stereo Separation:	45 dB at 1 kHz 30 dB at 100 Hz ~ 10 kHz

AM

Tuning Range	
U.S.A. & Canadian models:	530 ~ 1,710 kHz (10 kHz steps)
European models:	522 ~ 1,611 kHz (9 kHz steps)
Worldwide models:	531 ~ 1,602 kHz (9 kHz steps), 530 ~ 1,710 kHz (10 kHz steps)
Usable Sensitivity:	30 μ V
Image Rejection Ratio:	40 dB
IF Rejection Ratio:	40 dB
Signal-to-Noise Ratio:	40 dB
Total Harmonic Distortion:	0.7%

GENERAL

Power Supply	
U.S.A. & Canadian models:	AC 120 V, 60 Hz
European models:	AC 230 V, 50 Hz
Worldwide models:	AC 220-230 V and 120 V switchable, 50/60 Hz
Power Consumption	
U.S.A. & Canadian models:	4.2 A
Other area models:	240 W
Dimensions (W X H X D):	435 X 140 X 324 mm 17 1/8" X 5 1/2" X 12 3/4"
Weight:	TX-SV373 TX-SE350
	9.6 kg, 21.2 lbs. 9.8 kg, 21.6 lbs.

REMOTE CONTROL

TX-SV373:	RC-385S
TX-SE350:	RC-387S
Transmitter:	Infrared
Signal range:	Approx. 5 meters, 16 ft.
Power supply:	Two "AA" batteries (1.5V X 2)

Specifications and features are subject to change without notice.

SERVICE PROCEDURES

1. Replacing the fuses

 This symbol located near the fuse indicates that the fuse used is fast operating type. For continued protection against fire hazard, replace with same type fuse. For fuse rating refer to the marking adjacent to the symbol.

 Ce symbole indique que le fusible utilise est a rapide. Pour une protection permanente, n'utiliser que des fusibles de même type. Ce dernier est indiqué la qu le présent symbol est apposé.

Ref.No.	Part No.	Description
M901	5120-0024-0	△ 3.15A TIME-LAG 5 <W>
M902	5120-0024-0	△ 3.15A TIME-LAG 5 <P/T>
M902	5120-0200-0	△ T5A/125V <D/W>
M909	5100-2530-1B	△ T2.5A/250V IEC <P/T>
M905,M906	5120-0019-0	△ T4A 125V UL, Fuse <D>
M905,M906	5120-0203-0	△ T4A/250V,Fuse <P/T/W>

NOTE: <D>: 120V model only
<P>: 230V model only
<T>: Asian model only
<W>: Worldwide model only

2. To Initialize the unit

This device employs a microprocessor to perform various functions and operations. If interference generated by an external power supply, radio wave, or other electrical source results in accident which causes the specified operations and functions to operate abnormally.

To perform a result, please follow the procedure below.

1. Press and hold down VIDEO 1 button, then press SPEAKER A button.
2. After "clear" is displayed, the preset memory and each mode stored in the memory, such as surround, are initialized and will return to the factory settings.

3. Safety-check out

(Only U.S.A. model)

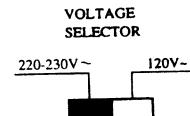
After correcting the original service problem, perform the following safety check before releasing the set to the customer. Connect the insulating-resistance tester between the plug of power supply cord and the screw on the back panel. Specifications: 3.3 Mohm \pm 10% at 500V.

4. Change of voltage

Worldwide models are equipment with a voltage selector to conform with local power supplies. This switch is located on the back panel.

Be sure to set this switch to match the voltage of the power supply in your area before turning the power switch on.

This switch is set to 220V at the factory. Voltage is changed by sliding the groove in the switch with the screwdriver to the right or left. Confirm that the switch has been moved all the way to the right or left before turning the power switch on.



5. Memory preservation

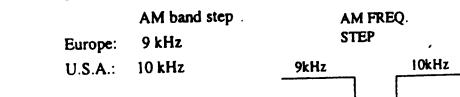
This unit does not require memory preservation batteries. A built-in memory power back-up system preserves contents of the memory during power failures and even when the unit is unplugged.

The unit must be plugged in and the power switch turned on and off once in order to charge the back-up system. Note that since this is not a permanent memory, the power switch must be turned on and off a few times each month the keep the back-up system operative.

The period of the time during which memory contents are preserved after power has last been turned off varies depending on climate and placement of the unit. On the average, memory contents are protected over a period of 3 to 4 weeks (a minimum of 2 weeks) after the last time power has been turned off. This period is shorted when the unit is exposed to very high humidity or used in an area with an extremely humid climate.

6. Setting the tuning step frequency

Worldwide models are equipped with a step band selector switch. This switch is located on the back panel. This switch is set to 9 kHz at the factory, but may have to be reset to 10 kHz depending on the area where the unit is used.

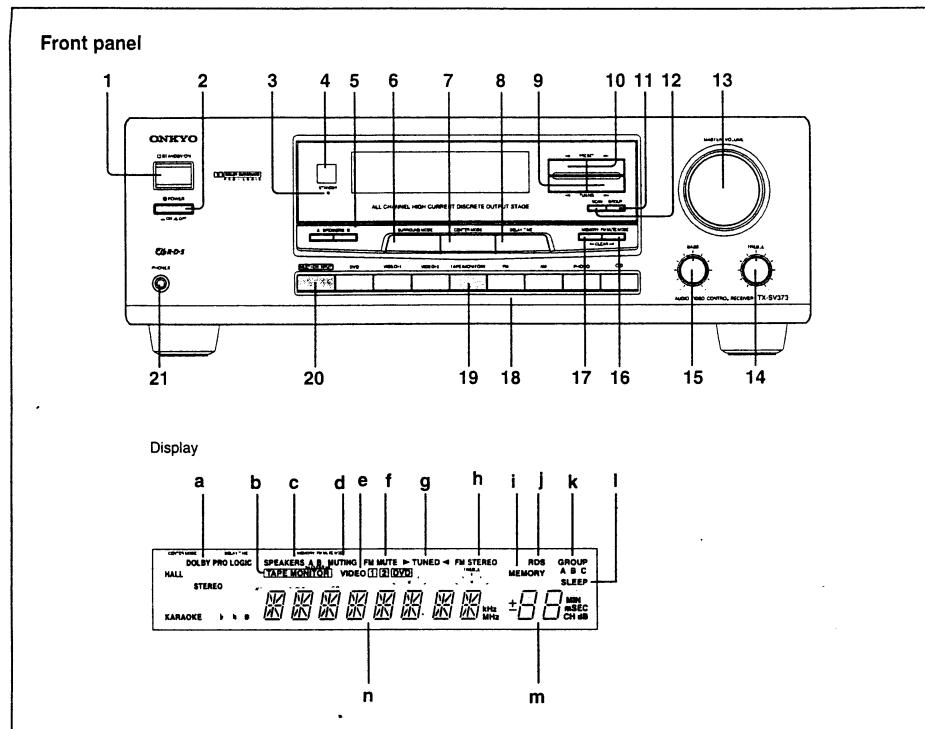


7. Changing the band step

With the exception of the worldwide models, a tuning step selector switch is not provided. When you change the band step, change the parts as shown below.



PANEL VIEWS



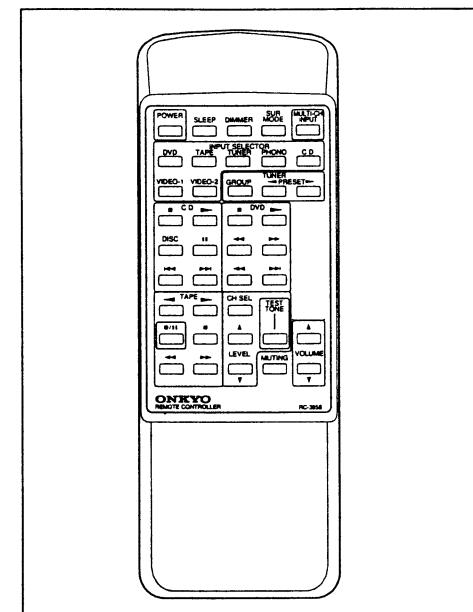
Front panel

1. Standby/On button
2. Power switch (System switch)
3. Standby indicator
4. Remote control sensor
5. Speaker selector buttons
6. Surround Mode button
7. Center Mode button
8. Delay Time button
9. Tuning \leftarrow/\rightarrow buttons
10. Preset station \leftarrow/\rightarrow buttons
11. Group button
12. Scan button
13. Master Volume control knob
14. Treble control knob
15. Bass control knob
16. FM Mute/Mode button
17. Memory button
18. Input selector buttons
19. Tape monitor button
20. Multi channel input button
21. Headphone jack

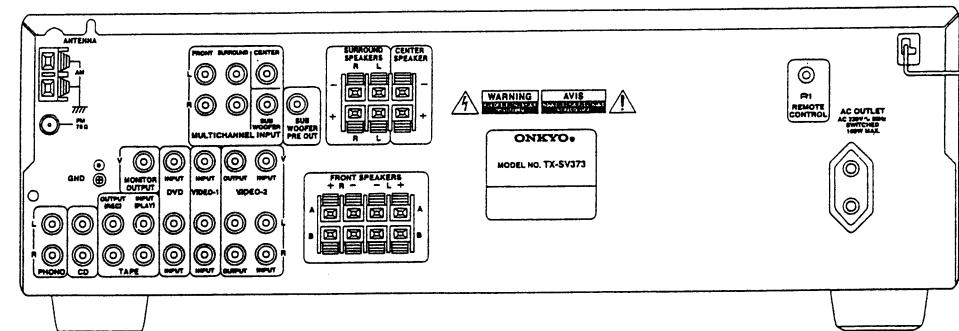
Display

- a. Surround Mode indicators
- b. Tape Monitor indicator
- c. Speaker selector indicators
- d. Muting indicator
- e. Video input selector indicators
- f. FM Mute indicators
- g. Tuned indicator
- h. FM Stereo indicator
- i. Memory indicator
- j. RDS indicator (European models only)
- k. Group indicators
- l. Sleep indicator
- m. Multi function display
 - (Preset station/Sleep time/Master volume level/Each speaker volume level/Delay time)
- n. Multi function display (Frequency/Input selector, etc.)

REMOTE CONTROLLER



REAR PANEL



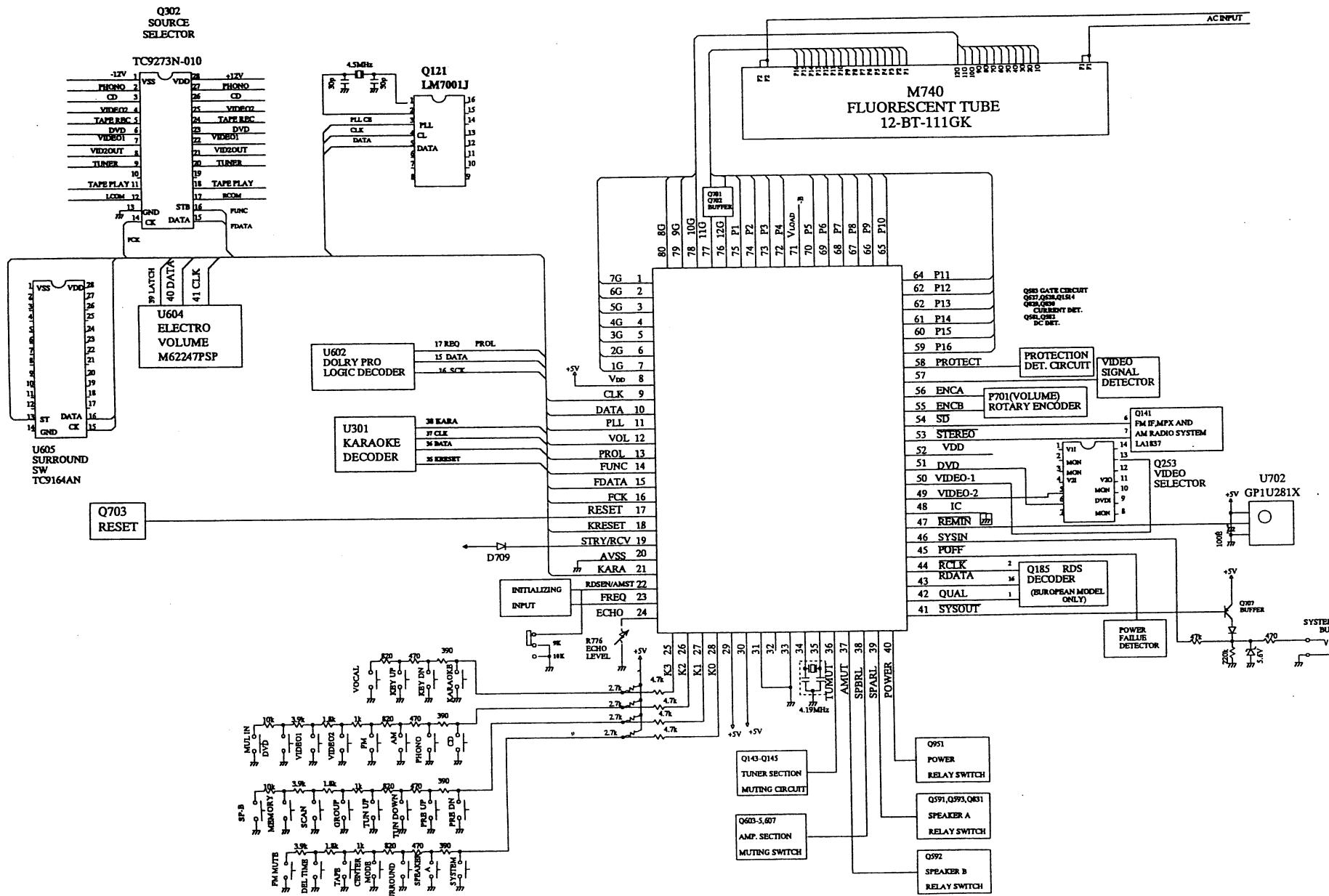
PRINTED CIRCUIT BOARD-PARTS LIST

MAIN CIRCUIT PC BOARD ASSEMBLY		CIRCUIT NO.	PART NO.	DESCRIPTION
CIRCUIT NO.	PART NO.			
ICs		C401,C402	354744709	47 μ F,16V,Elect.
Q301	222465	NJM4558D	C413,C414	354741009
Q302	22240881	TC9273N-010	C415,C416	10 μ F,16V,Elect.
Q401,Q402	22240293	NJM4558L	371121034	0.01 μ F \pm 5%,50V,Mylar
Q921	222780124NEC	UPC7812H	C417,C418	374721015
Q922	222790125NEC	UPC79M12HF	C463	100pF \pm 10%,50V,Mylar
Q923	222780565JRC	NJM78M56FA	C465-C467	354744709
Transistors		C501,C502	354744709	47 μ F,16V,Elect.
Q1501-Q1503	2211732 or	2SC1845-F or	C503,C504	47 μ F,16V,Elect.
Q1514	2211733	2SC1815-E	C505,C506	220 μ F,16V,Elect.
Q1504,Q1505	2211353	2SA949-O	C507-C510	10 μ F,50V,Elect.
Q1506,Q1508	2211633	2SC2229-O	C519,C520	0.1 μ F \pm 5%,50V,Plastic
Q1507	2211353	2SA949-O	C521,C522	354744709
Q1509	2211633	2SC2229-O	C523,C524	2pF \pm 0.2 CH,50V,Ceramic
Q1510	2203010	2SC517I	C525,C526	354774719
Q1511	2203000	2SA1930	C581	470 μ F,3.3V,Elect.
Q1512	2203043	2SC5197-O	C910	354732219
Q1513	2203033	2SA1940-O	C915,C916	220 μ F,10V,Elect.
Q1515	2213284	2SC1740S-R	C917	354753329
Q423-Q425	2213631	RN1241-A	C918	3300 μ F,25V,Elect.
Q427	2212600	DTA114ESA	C923,C932	354781009
Q501-Q506	2211732 or	2SC1845-F or	C924,C925	10 μ F,50V,Elect.
Q527,Q528	2211733	2SC1815-E	C926	4700 μ F,35V,Elect.
Q507-Q510	2211353	2SA949-O	C928,C929	354781019
Q511,Q512	2211633	2SC2229-O	Resistors	100 μ F,50V,Elect.
Q513,Q514	2211353	2SA949-O	R1512,R1513	68 Ω \pm 5%,1/2W,Metal oxide
Q515-Q518	2211633	2SC2229-O	R1515	443525604
Q519,Q520	2203010	2SC517I	R1516	56 Ω \pm 5%,1/2W,Metal oxide
Q521,Q522	2203000	2SA1930	R1522,R1523	68 Ω \pm 5%,1/2W,Metal oxide
Q523,Q524	2203043	2SC5197 (O)	R1524	443526024
Q526,Q541	2203033	2SA1940 (O)	R1529	2.2 Ω \pm 5%,1/2W,Metal
Q529,Q530	2213284	2SC1740S-R	R1532	4756-2226-3-06
Q581,Q582	2211732 or	2SC1845-F or	R521-R524	SVR 2.2K,H3,Trimming
Q583	2211792	2SA992	R525,R526	68 Ω \pm 5%,1/2W,Metal oxide
Q591-Q593	2213640	DTC123JSA	R539-R542	68 Ω \pm 5%,1/2W,Metal oxide
Q924	2211455	2SA1015-GR	R540-R543	56 Ω \pm 5%,1/2W,Metal oxide
Diodes		R567,R569	443530224	390 Ω \pm 5%,1W,Metal oxide
D501,D503	4804-0040-I	IN4004	R572,R528	2.2 Ω \pm 5%,1/2W,Metal resistor
D591,D592	223163	ISS133	R573,R574	SVR 2.2K,Trimming
D595	223163	ISS133	Relays	
D901	223260	IN4148	RL501,RL502	24VDC,125V OSA-SS-224DM3 OE
D910	22380022	RBV602	RL503	4500-0900-0
D911	22380021	RS403L	Terminals	
D915-D921	4804-0040-I	IN4004	PH,DVD	6P RCA,Phono,DVD
D922	224473304	MTZJ33D	SP	2113-1312-0
D923	223163	ISS133	V2	8P,Speaker
Capacitors			2113-1309-0	4P RCA,Video-2
C1501,C1512	354744709	47 μ F,16V,Elect.	Connectors	
C1502	354721015	100pF \pm 10%,50V,Mylar	J1501	2113-1160-0
C1503	354742219	220 μ F,16V,Elect.	J201A	7707-1080-2004
C1504,C1505	354781009	10 μ F,50V,Elect.	J202A	2101-1591-0
C1509	345340201	2pF \pm 0.2 CH,50V,Ceramic	J203A	2101-1641-0
C1511	354721044	0.1 μ F \pm 5%,50V,Plastic	J204A	7706-1100-2004
C1517,C922	354781009	10 μ F,50V,Elect.	J205A	2101-1611-0
C303,C304	354741009	10 μ F,16V,Elect.	J206A	2102-0415-004
C307,C308	354721019	100 μ F,3.3V,Elect.	J501,J502	2113-1160-0
C309,C310	371126824	6800pF \pm 5%,50V,Mylar	J603B	2101-1621-0
C311,C312	371121824	1800pF \pm 5%,50V,Mylar	J801B	7708-1150-3004
C313-C316	354741009	10 μ F,16V,Elect.	J901B	2102-0715-004
C391,C392	354721015	100pF \pm 10%,50V,Mylar	J302B	2101-1651-0
			J303B	2101-1631-0

CIRCUIT NO.	PART NO.	DESCRIPTION	CIRCUIT NO.	PART NO.	DESCRIPTION	CIRCUIT NO.	PART NO.	DESCRIPTION
Heat sinks								
HQ921	5400-1611-0		C691,C694	354742219	220 μ F,16V,Elect.	C692,C695	354741009	10 μ F,16V,Elect.
HQ922,HQ923	5400-0831-0		C696	374796844	0.68 μ F \pm 5%,63V,Plastic	C698	354742209	22 μ F,16V,Elect.
			C699	354741009	10 μ F,16V,Elect.			
DOLBY PROLOGIC PC BOARD ASSEMBLY								
CIRCUIT NO.	PART NO.	DESCRIPTION	CIRCUIT NO.	PART NO.	DESCRIPTION	CIRCUIT NO.	PART NO.	DESCRIPTION
U601,U603	222465	NJM4558D	U602	3131-5750-0	NJW1103FC	U604	22241296	M62447SP
U605	22240800	TC9164AN	U606,U607	222465	NJM4558D	U609	222780094MAT	AN7809
ROTARY PC BOARD ASSEMBLY								
CIRCUIT NO.	PART NO.	DESCRIPTION	CIRCUIT NO.	PART NO.	DESCRIPTION	CIRCUIT NO.	PART NO.	DESCRIPTION
Q601	4858-0501-5	LM8050I	Q602	4858-5501-5	LM8550I	Q603-Q605	2213631	RN1241-A
Q606	2215162	2SD667A	Q607	2213631	RN1241-A			
SURROUND PC BOARD ASSEMBLY								
CIRCUIT NO.	PART NO.	DESCRIPTION	CIRCUIT NO.	PART NO.	DESCRIPTION	CIRCUIT NO.	PART NO.	DESCRIPTION
Q801-Q806	2211732 or	2SC1845-F or	Q829,Q830	2211733	2SC1845-E	Q807,Q808	2213284	2SC1740S-R
Q809-Q812	2211353	2SA949-O	Q815,Q816	2211353	2SA949-O	Q817-Q820	2211633	2SC2229-O
Q821,Q822	2213284	2SC1740S-R	Q823,Q824	2215173	2SB647A-C	Q825,Q826	2202923	2SC5196-O
Q827,Q828	2202913	2SA1939-O	Q831	2213640	DTC123JSA			
Diodes								
M602	2300-1400-0	4MHz, Crystal	C600,C646	374721044	0.1 μ F \pm 5%,50V,Plastic	C601,C602	354741009	10 μ F,16V,Elect.
C605,C606	354780229	2.2 μ F,50V,Elect.	C609,C629	354741009	10 μ F,16V,Elect.	C612,C614	35474209	22 μ F,16V,Elect.
C615,C617	354740339	3.3 μ F,16V,Elect.	C619,C622	354741009	10 μ F,16V,Elect.	C628	354744709	47 μ F,16V,Elect.
C620,C625	354742209	22 μ F,16V,Elect.	C632,C636	354780229	2.2 μ F,50V,Elect.	C633,C637	354741009	10 μ F,16V,Elect.
C640	354780229	2.2 μ F,50V,Elect.	C641,C697	354744709	47 μ F,16V,Elect.	C642-C645	354744709	10 μ F,16V,Elect.
C646,C649	345342704	27pF \pm 5% CH,50V,Ceramic	C650,C690	354742209	22 μ F,16V,Elect.	C651	354750109	1 μ F,25V,Elect.
C652,C658	371121034	0.01 μ F \pm 5%,50V,Mylar	C653,C659	371121824	1800pF \pm 5%,50V,Mylar	C654,C657	371126834	0.068 μ F \pm 5%,50V,Plastic
C655,C656	354741009	0.1 μ F \pm 5%,50V,Plastic	C656-C660	374721044	0.1 μ F \pm 5%,50V,Plastic	C663	371121224	1200pF \pm 5%,50V,Mylar
C665	371128214	820pF \pm 5%,50V,Mylar	C666,C693	371125624	5600pF \pm 5%,50V,Mylar	C667	374724734	0.047 μ F \pm 5%,50V,Plastic
C668,C669	37472344	0.22 μ F \pm 5%,50V,Mylar	C670,C671	354750479	4.7 μ F,25V,Elect.	C672,C673	37472344	0.22 μ F \pm 5%,50V,Mylar
C674	374721044	0.1 μ F \pm 5%,50V,Plastic	C675,C676	374724734	0.047 μ F \pm 5%,50V,Plastic	C677,C678	374721044	0.1 μ F \pm 5%,50V,Plastic
C679,C680	374722334	0.022 μ F \pm 5%,50V,Plastic	C681,C687	371126814	680pF \pm 5%,50V,Mylar	C682,C686	374721044	0.1 μ F \pm 5%,50V,Plastic
C688,C689	354741009	10 μ F,16V,Elect.						

POWER SWITCH PC BOARD				CIRCUIT NO. PART NO. DESCRIPTION				CIRCUIT NO. PART NO. DESCRIPTION				SECONDARY PC BOARD				CIRCUIT NO. PART NO. DESCRIPTION				CIRCUIT NO. PART NO. DESCRIPTION					
CIRCUIT NO.		PART NO.		DESCRIPTION		CIRCUIT NO.		PART NO.		DESCRIPTION		CIRCUIT NO.		PART NO.		DESCRIPTION		CIRCUIT NO.		PART NO.		DESCRIPTION			
C911	3500191	△	DE7150F-103M, IS capacitor	C701	354780109	1 μ F,50V,Elect.																			
C911a	27301216	△	SB1925A,Cover for C911	C702	374794744	0.47 μ F±5%,63V,Plastic																			
M907	5200-3665-0	△	Power switch	C703,C709	354721019	100 μ F,6.3V,Elect.																			
TONE PC BOARD ASSEMBLY				C704,C705	354780109	1 μ F,50V,Elect.																			
CIRCUIT NO.		PART NO.		DESCRIPTION		C706	3000076	0.1F, 5.5V, Super																	
C411,C412	374721834	0.018 μ F±5%,50V,Plastic capacitor	C711	354721019	100 μ F,6.3V,Elect.																				
J201b	2102-071S-004	7P, Wafer	M701-M703	5200-3529-0	Tact <350>																				
R419,R421	4750-6166-0	100KWX2,Variable resistor	M707-M729	5200-3529-0	Tact																				
VIDEO PC BOARD ASSEMBLY				M742	5200-3529-0	Tact <350>																			
VIDEO 1 PC BOARD ASSEMBLY				RESISTORS				CIRCUIT NO. PART NO. DESCRIPTION				SECONDARY PC BOARD				CIRCUIT NO. PART NO. DESCRIPTION				CIRCUIT NO. PART NO. DESCRIPTION					
CIRCUIT NO.		PART NO.		DESCRIPTION		R776	4750-6176-0	10KB,Variable <350>					C901-C907	374791044	0.1 μ F±5%,63V,Plastic capacitor		C170	374722334	0.022 μ F±5%,50V,Plastic						
CIRCUIT NO.		PART NO.		DESCRIPTION		R804,R805	4750-6176-0	10KB,Variable <350>					M905a,M906a	4132-1011-0	Fuse holder		C175	354741009	10 μ F,16V,Elect.						
CIRCUIT NO.		PART NO.		DESCRIPTION									R901,R902	453630224	2.2 Ω±5%, 1/2W, Metal resistor		C171	345340802	8pF±0.5 CH,50V,Ceramic						
CIRCUIT NO.		PART NO.		DESCRIPTION									M905,M906	5120-0019-0	T4A L125V UL, Fuse <D>		C173	374724734	0.047 μ F±5%,50V,Plastic						
CIRCUIT NO.		PART NO.		DESCRIPTION									M905,M906	5120-0203-0	T4A/250V,Fuse <P/T/W>		C179	354742209	22 μ F,16V,Elect.						
CIRCUIT NO.		PART NO.		DESCRIPTION									J901a	7707-1300-2004	7 P, Connector wire		C186,C190	354721019	100 μ F, 6.3V,Elect. <P>						
TUNER PC BOARD				CIRCUIT NO. PART NO. DESCRIPTION				CIRCUIT NO. PART NO. DESCRIPTION				SECONDARY PC BOARD				CIRCUIT NO. PART NO. DESCRIPTION				CIRCUIT NO. PART NO. DESCRIPTION					
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CIRCUIT NO.																									

MICROPROCESSOR-CONNECTION DIAGRAM



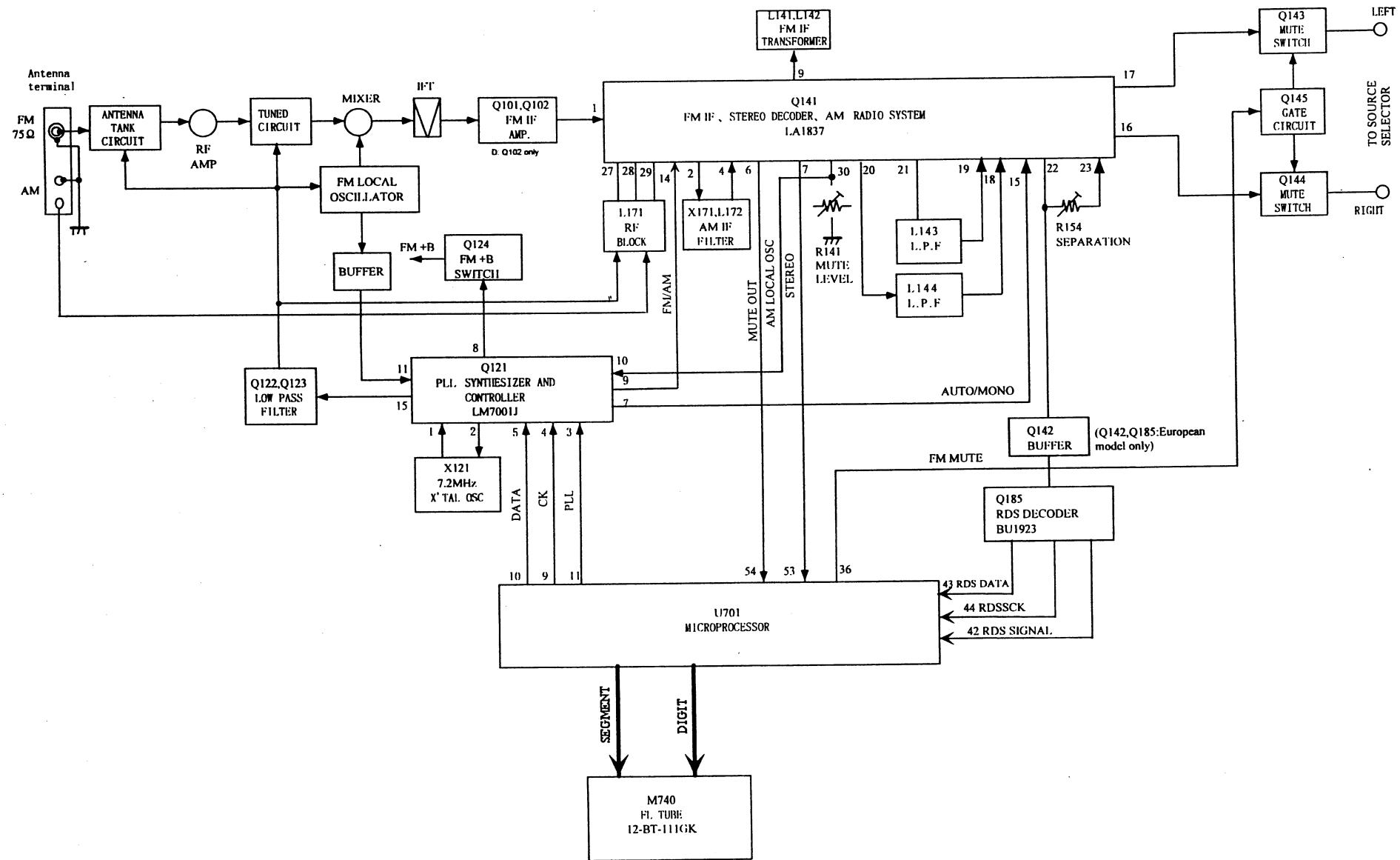
TREMINAL DESCRIPTIONS

Pin No.	Function	Descriptions
1~7	7G~1G	Grid output terminals
8	VDD	Positive power supply terminal (+5V)
9	CLK	Clock output terminal.
10	DATA	Data output terminal.
11	PLL	Chip enable output terminal for PLL IC Q121.
12	VOL	Clock output terminal for electro volume IC U604.
13	PROL	Request output terminal for DOLBY IC U602.
14	FUNC	Strobe output terminal for function switch IC Q302
15	FDATA	Data output terminal for function and surround switch ICs.
16	FCK	Clock output terminal for function and surround switch ICs.
17	RESET	System reset input terminal
18	KRESET	Reset output terminal for KARAOKE decoder.
19	STBY/RECV	STANDBY/RECEIVED indication output terminal
20	AVSS	Ground terminal for A/D converter
21	KARA	Initializing input terminal
22	RDSEN/AMS	Initializing input terminal for RDS decoder/AM band switch connection terminal.(Worldwide model)
23	FREQ	Initializing input terminal for region of frequency range
24	ECHO	Echo volume connection terminal
25-28	K3~K0	Key input terminals
29	AVDD	Analog power supply terminal (+5V)
30	AVREF	Reference voltage input terminal for A/D converter
31	XT1	Crystal connection terminals for subsystem clock
32	XT2	Not used.
33	VSS	Ground terminal
34	X1	Crystal connection terminals for main system clock
35	X2	Connect the 4.19MHz ceramic oscillator.
36	TUMUT	Muting output terminal for tuner section
37	AMUT	Muting output terminal for amplifier of front channels.
38	SPBRL	Speaker relay B control output terminal
39	SPARL	Speaker relay A control output terminal
40	POWER	Power source control output terminal
41	SYSOUT	System code output terminal
42	QUAL	Detection input terminal for RDS broadcast
43	RDDATA	Data input terminal for RDS broadcast
44	RCLK	Clock input terminal from RDS demodulator

Pin No.	Function	Descriptions
45	POFF	Power failure detection input terminal
46	SYSIN	System code input terminal
47	REMIN	Remote control signal input terminal
48	IC	Internal connection terminal
49	VIDEO2	Video selector control output terminal
50	VIDEO1	Video selector control output terminal
51	DVD	Video selector control output terminal
52	VDD	Power supply terminal (+5V)
53	STEREO	Stereo broadcast detection input terminal
54	SD	Broadcast detection input terminal
55,56	ENCB,A	Rotary encoder connection terminals for Volume.
57		Not used.
58	PROTECT	Detection input terminal for protection circuit
59-70	P16~P5	Segment output terminals
71	VLOAD	Resistor connection terminal for FIP controller and driver
72	P4~P1	Segment output terminals
76-80	12G~8G	Grid output terminals

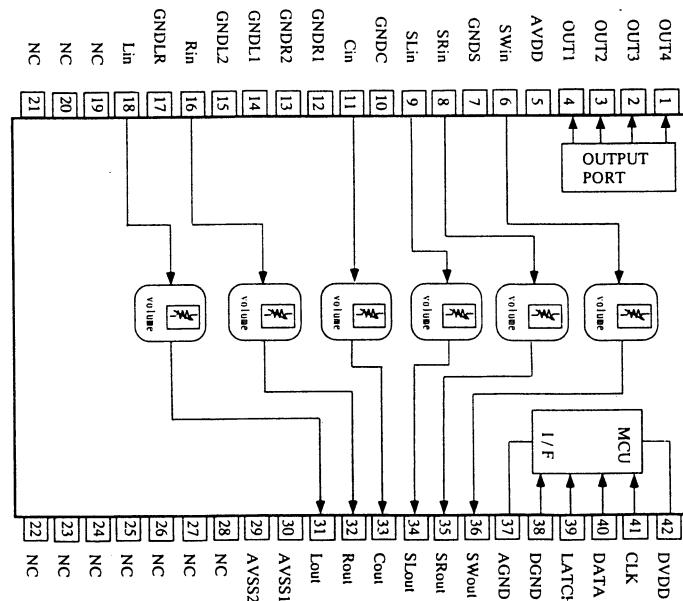
BLOCK DIAGRAM

TUNER SECTION

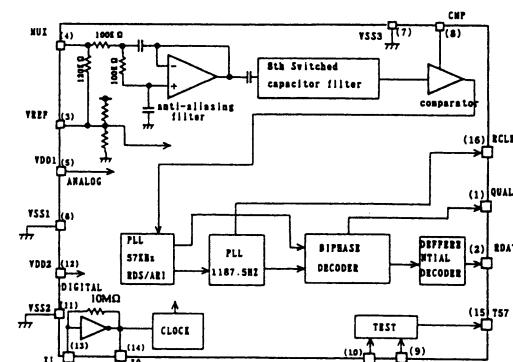


IC BLOCK DIAGRAM AND DESCRIPTIONS

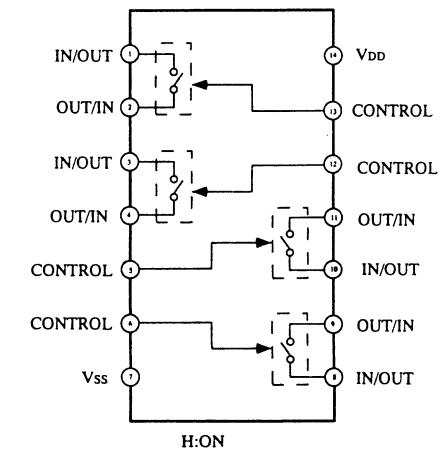
M62447SP (Electro volume)



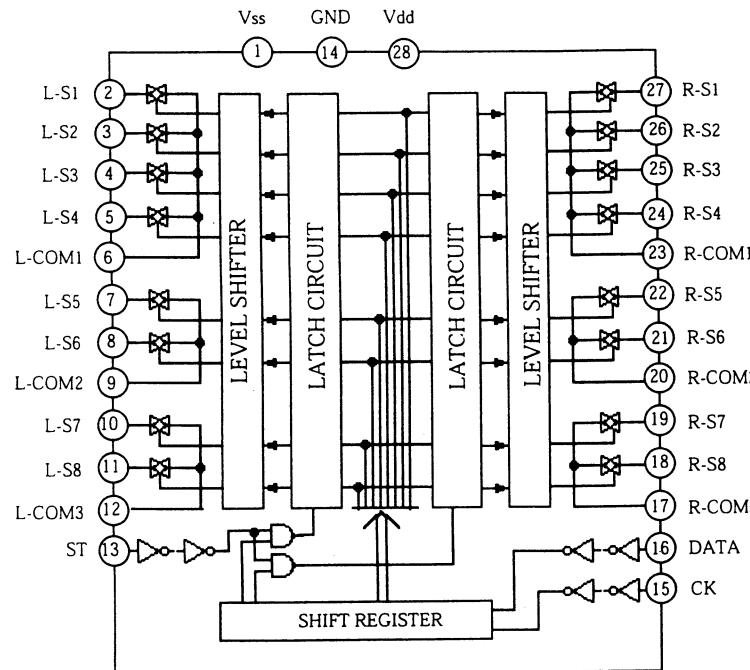
BU1923 (RDS decoder)



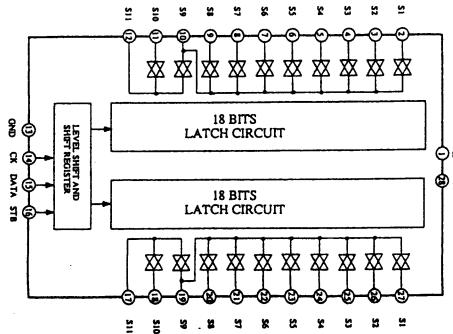
LC4066 (Analog switch)



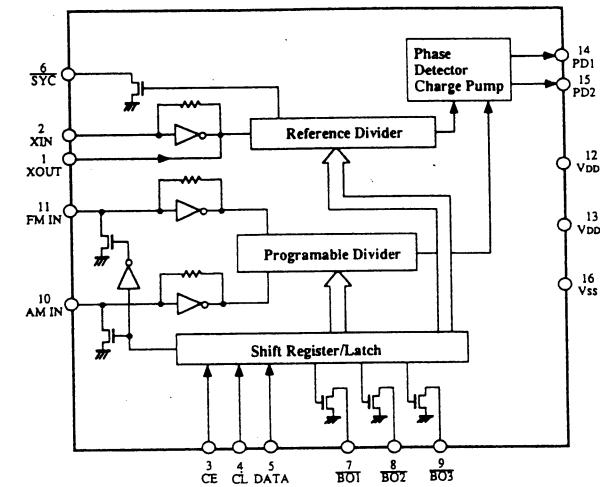
TC9164AN (Analog switch)



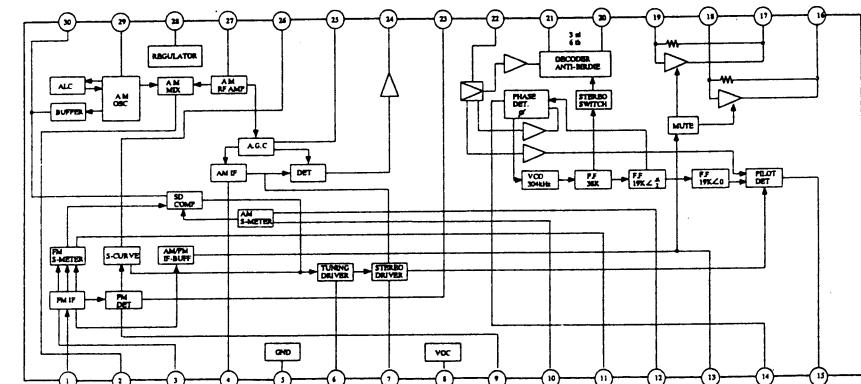
TC9273N-010 (Analog switch)



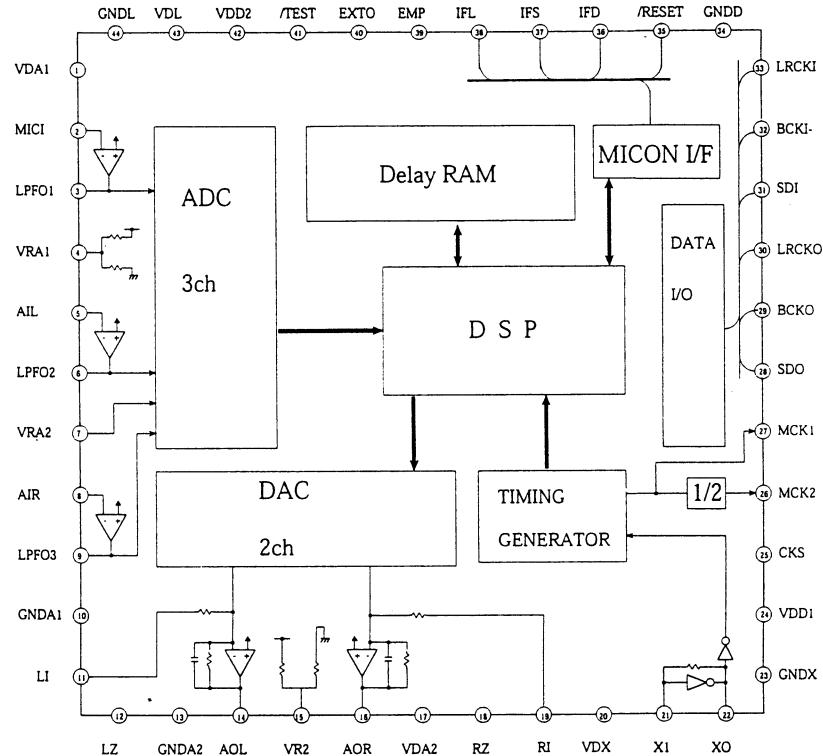
LM7001J (PLL synthesizer and controller)



LA1837 (FM and AM radio system)



TC9409BF (Karaoke decoder)



ADJUSTMENT PROCEDURES

Idling current adjustment

Before Idling adjustment, turn the trimming resistors R573, R574, R867, R868 and R1532 to counter clockwise.

Connect the DC voltmeter to sockets J501, J502, TP801, TP802 and J1501.

After turn POWER to ON, adjust the trimming resistors R573, R574, R867, R868 and R1532 so that the reading of voltmeter becomes $0.5 \pm 0.2\text{mV}$.

After adjustment, attach the top cover.

Confirm the voltage of above points after five minutes.

Readjust the above resistors so that the voltage becomes $0.5 \pm 0.2\text{mV}$.

Note: No load and No signal

Preparation

1. Input
 FM mono: 1kHz, 75kHz devi., 60dB/ μ V
 FM stereo: 1kHz, 67.5kHz devi., 60dB/ μ V
 Pilot signal 19kHz, 7.5kHz devi.
 AM: 400Hz, 30% mod.

FM Adjustment

Item	Step	Connection of instrument	FM SG output	Stereo modulator output	Tuning frequency	Output indicator	Adjustment point	Adjust for	Remarks
FM IF/RF	1	Fig.1	99.0MHz 1kHz 75kHz devi. 65dBf(60dB)		99.0MHz	DC voltmeter	L141	$0 \pm 20mV$	FM MUTE/MODE switch ON/STEREO Repeat the steps 1 and 3 until no further adjustment is necessary.
	2					AC voltmeter	IFT on the front end	Maximum	
	3					Distortion analyzer	L142	Minimum	
Stereo Distortion		Fig.2	99.0MHz Ext. mod. 65dBf(60dB)	Channel L or R 1kHz	99.0MHz	Distortion analyzer	IFT on the front end	Minimum	Don't turn more than $\pm 180^\circ$
Stereo Separation	1	Fig.2	99.0MHz Ext. mod. 65dBf(60dB)	Channel L 1kHz	99.0MHz	Channel R AC voltmeter	R156	Minimum	Maximum and same separation
	2			Channel R 1kHz		Channel L AC voltmeter		Minimum	
Muting Level		Fig.3	99.0MHz 19.2dBf(14dB)		99.0MHz	Oscilloscope or TUNED indicator	R141	Signal output or light on	

AM adjustment

120V model

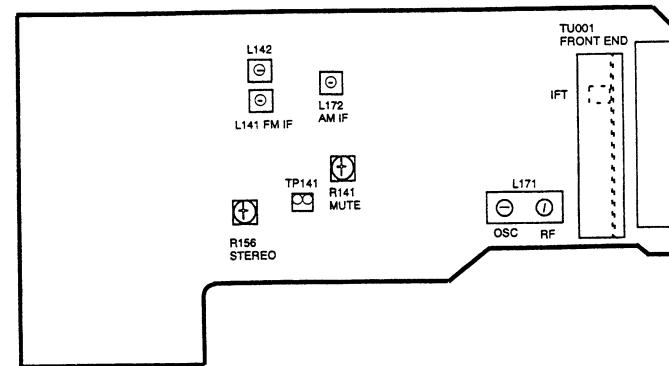
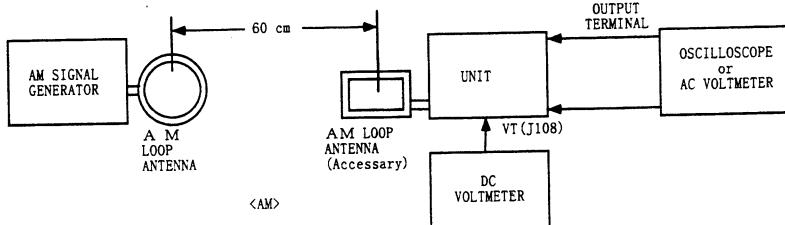
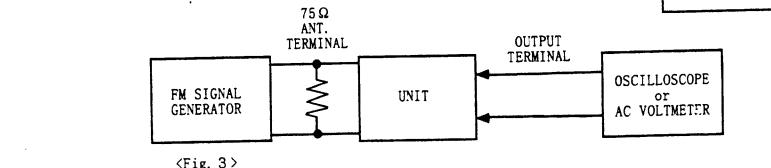
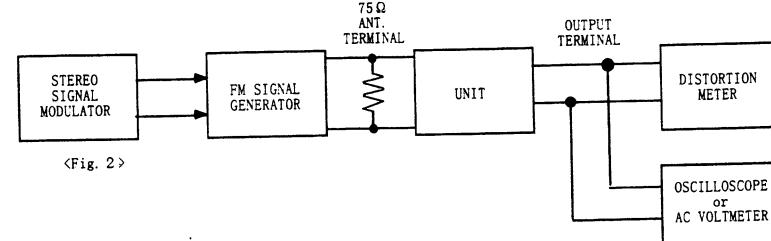
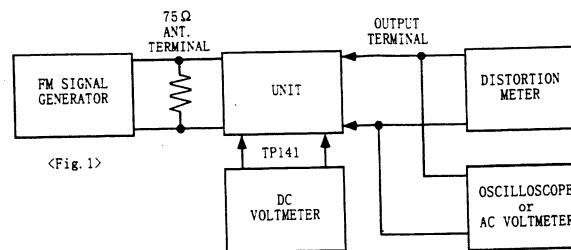
Step	AM SG output	Tuning Frequency	Output Indicator	Adjustment point	Adjust for
1		530kHz	Digital DC voltmeter	OSC coil on RF block L171	$1.4 \pm 0.2V$
2	600kHz 400Hz 30% mod. 60dB/m	600kHz	AC voltmeter	RF coil on RF block L171	Maximum
3	990kHz 400Hz 30% mod. 60dB/m	990kHz	AC voltmeter	L172	Maximum

230V and worldwide models

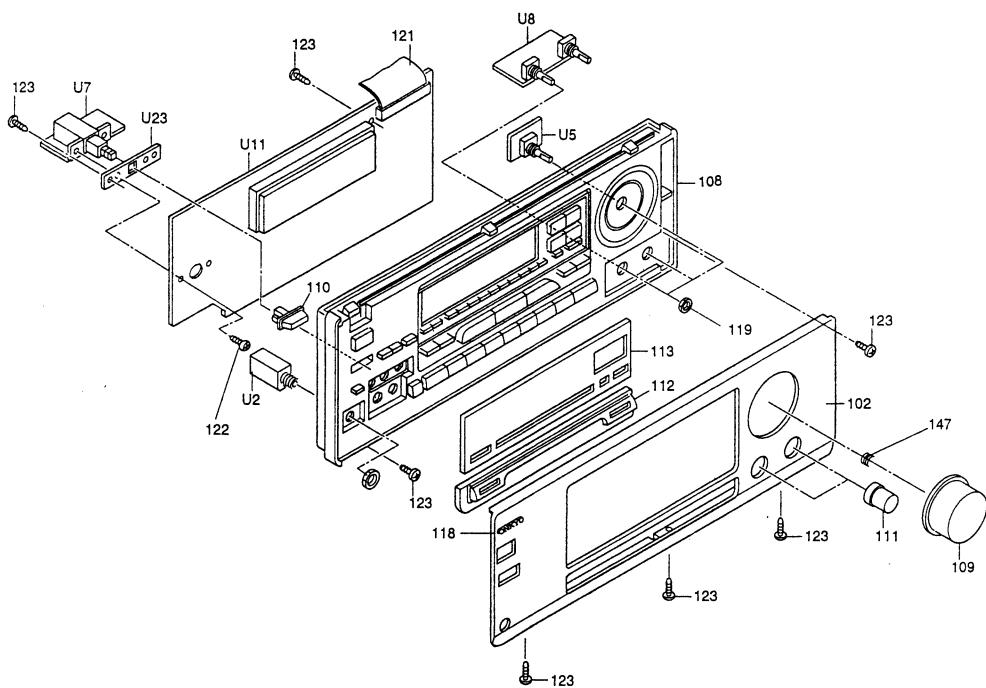
Step	AM SG output	Tuning Frequency	Output Indicator	Adjustment point	Adjust for
1		522kHz or 531kHz	Digital DC voltmeter	OSC coil on RF block L171	$1.4 \pm 0.2V$
2	603kHz 400Hz 30% mod. 60dB/m	603kHz	AC voltmeter	RF coil on RF block L171	Maximum
3	999kHz 400Hz 30% mod. 60dB/m	999kHz	AC voltmeter	L172	Maximum

Reference Specification

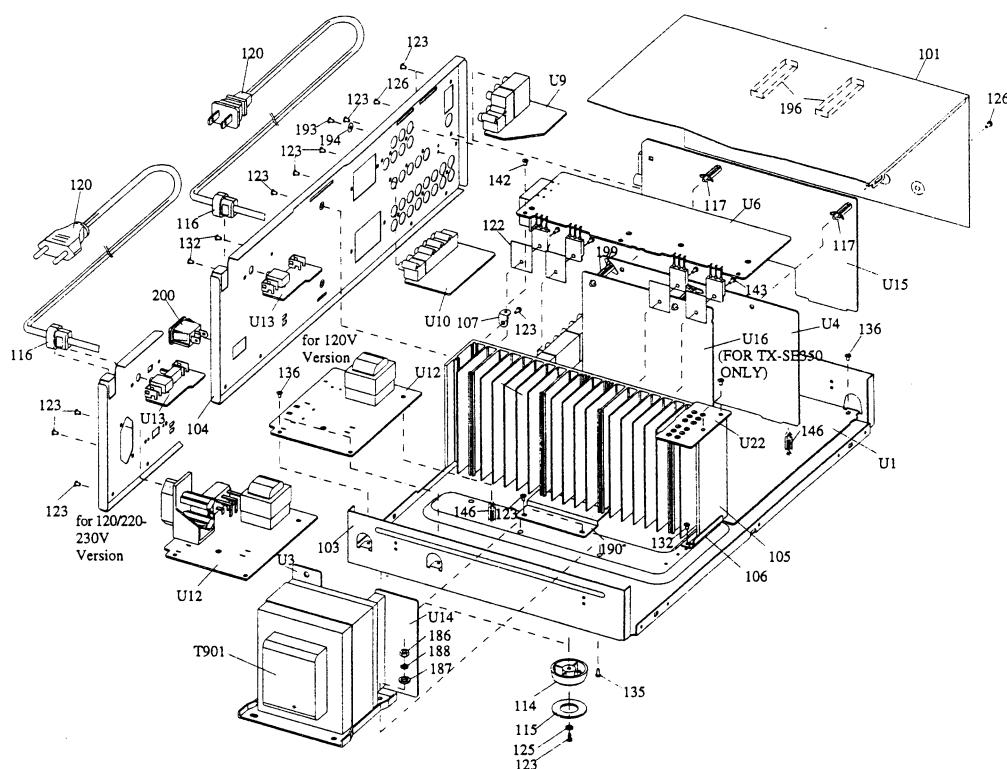
FM tuned voltage: 87.5MHz~108.0MHz
 more than 1.3V~Less than 9.0V
 AM tuned voltage: 530kHz~1710kHz
 $1.4 \pm 0.5V$ ~Less than 9.0V



EXPLODED VIEWS



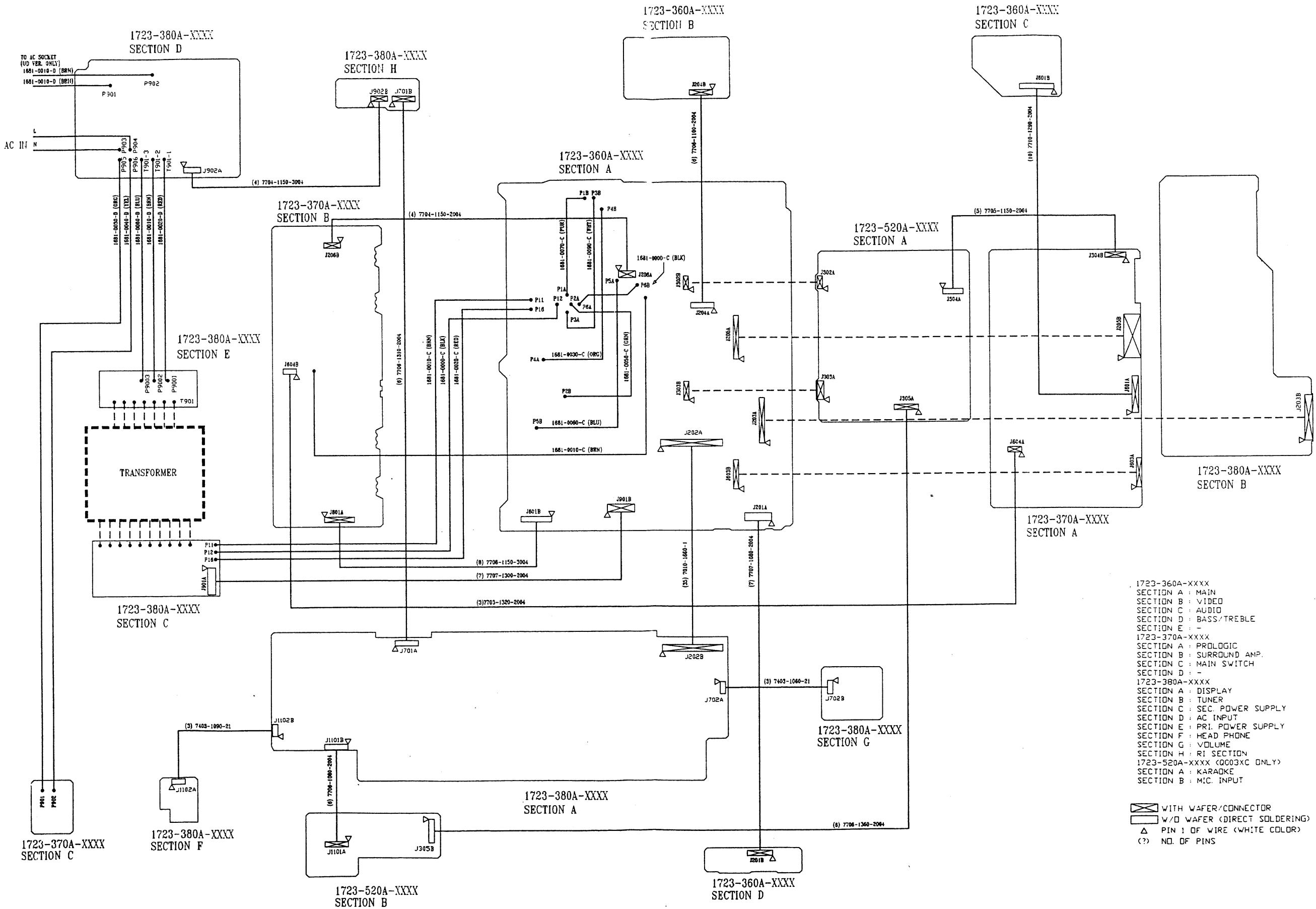
REF. NO.	PART NO.	DESCRIPTION	REF. NO.	PART NO.	DESCRIPTION
101	1402-7611-0	Top cover	117	4153-9221-0	Holder, PCB
102	1402-7591-1	Front panel <D/T/W>	118	28135244Y	Badge
103	1402-7592-1	Front panel <P>	119	2640-C020-1434	Hexagon nut
104	1402-7620-0	Chassis	120	7009-3100-2	Power supply cord <D>
	1402-7601-0	Rear panel <D>		7009-3110-0	Power supply cord <P/T/W>
	1402-7602-0	Rear panel <P>		7009-6750-0	Power supply cord <R>
	1402-7603-0	Rear panel <T>	121	7010-1660-1	Flexible flat cable
	1402-7604-0	Rear panel <W>	122	3100-3211-0	Insulated sheet
	1402-7605-0	Rear panel <R>	123	838130088	3TTB+8B, Self-tapping screw
105	5400-4001-0	Heat sink	125	87643006	W3*6, Metal washer
106	4134-0121-0	Bracket, heat sink	126	2954-3008-3000	T3X8MM, Self-tapping screw
107	4152-0451-0	Bracket L	132	82513006	3B-6FN, Tapping screw
108	1465-2301-0	Front bracket	135	838140108	M4X10, Self-tapping screw
109	2443-3101-0	Knob, Volume	136	838130068	3TTB+6B, Self-tapping screw
110	2443-4401-0	Knob, Power	143	831130100	M3X10, Self-tapping screw
111	2443-3501-0	Knob, Tone	146	4152-5831-0	Holder, PC board support
112	1465-2001-0	Decorative frame	147	2510-3071-1	Knob, spring
113	3716-1501-0	Clear plate	150	2600-C006-1604	M12, Metal washer
114	27175319A	Leg			
115	28141332	Cushion			
116	27300750	▲ Bushing, cord			



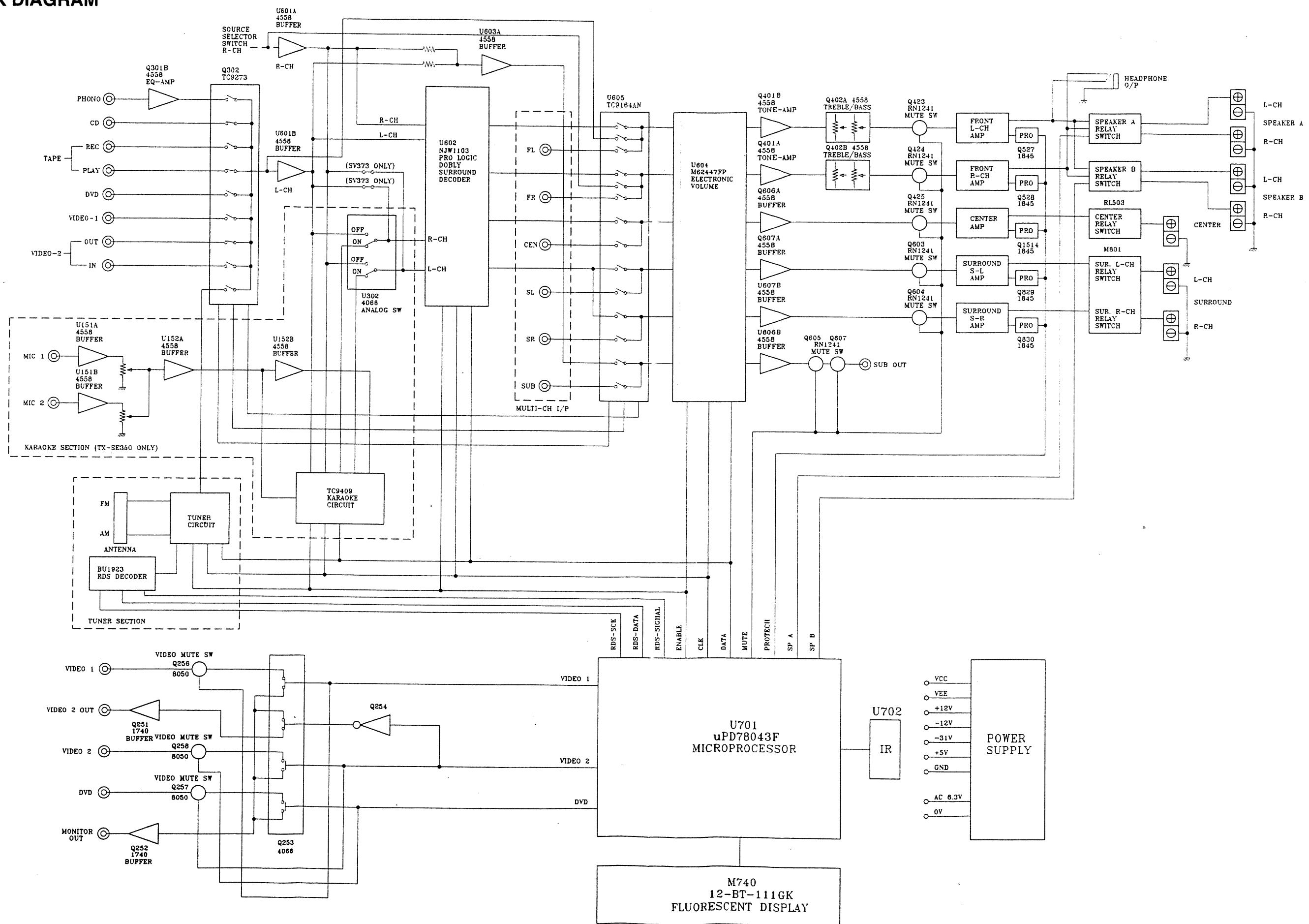
REF. NO.	PART NO.	DESCRIPTION	REF. NO.	PART NO.	DESCRIPTION
186	2640-4030-0703	M4,Nut	U12	PCBQ0020CPWR	Power PC board ass'y <D>
187	87644012	W4*12F(BC), Flat washer		PCBQ0021CPWR	Power PC board ass'y <P/T>
188	2607-4010-0703	M4, Spring washer		PCBQ0023CPWR	Power PC board ass'y <W>
190	4134-8381-0	Bracket, heat sink		PCBQ0024CPWR	Power PC board ass'y <R>
193	838230088	3TTB+8B(NI), Nickel screw	U13	PCBQ0020CRI	RI terminal PC board ass'y <D/P/T>
194	87643010	W3*10F(BC), Flat washer		PCBQ0023CRI	RI terminal PC board ass'y <W/R>
200	2103-5802-0	▲ 125V, AC outlet <D>	U14	PCBQ0020CSEC	Secondary PC board ass'y <D>
T901	1806-2310-1	△ EI-9 1P/120/230V, Power transformer		PCBQ0021CSEC	Secondary PC board ass'y <P/T/W/R>
U1	PCBQ0020CMAIN	Main PC board ass'y	U15	PCBQ0020CTUN	Tuner PC board ass'y <D>
U2	PCBQ0020CPHO	Headphone PC board ass'y		PCBQ0021CTUN	Tuner PC board ass'y <P>
U3	PCBQ0020CPRI	Primary Power PC board ass'y		PCBQ0022CTUN	Tuner PC board ass'y <T>
U4	PCBQ0020CPROL	Pologic PC board ass'y		PCBQ0023CTUN	Tuner PC board ass'y <W/R>
U5	PCBQ0020CROT	Rotary PC board ass'y			
U6	PCBQ0020CSURR	Surround PC board ass'y			
U7	PCBQ0020CSW	Power Switch PC board ass'y			
U8	PCBQ0020CTONE	Tone PC board ass'y			
U9	PCBQ0020CVDO	Video PC board ass'y			
U10	PCBQ0020CVDO1	Video 1 PC board ass'y			
U11	PCBQ0020CKEY	Display PC board ass'y <D>			
	PCBQ0021CKEY	Display PC board ass'y <P/T>			
	PCBQ0023CKEY	Display PC board ass'y <W/R>			

NOTE: <D>:120V model only
 <P>:230V model only
 <T>:Asian model only
 <W>:Worldwide model only
 <R>:Chinese model only

WIRING VIEW



BLOCK DIAGRAM



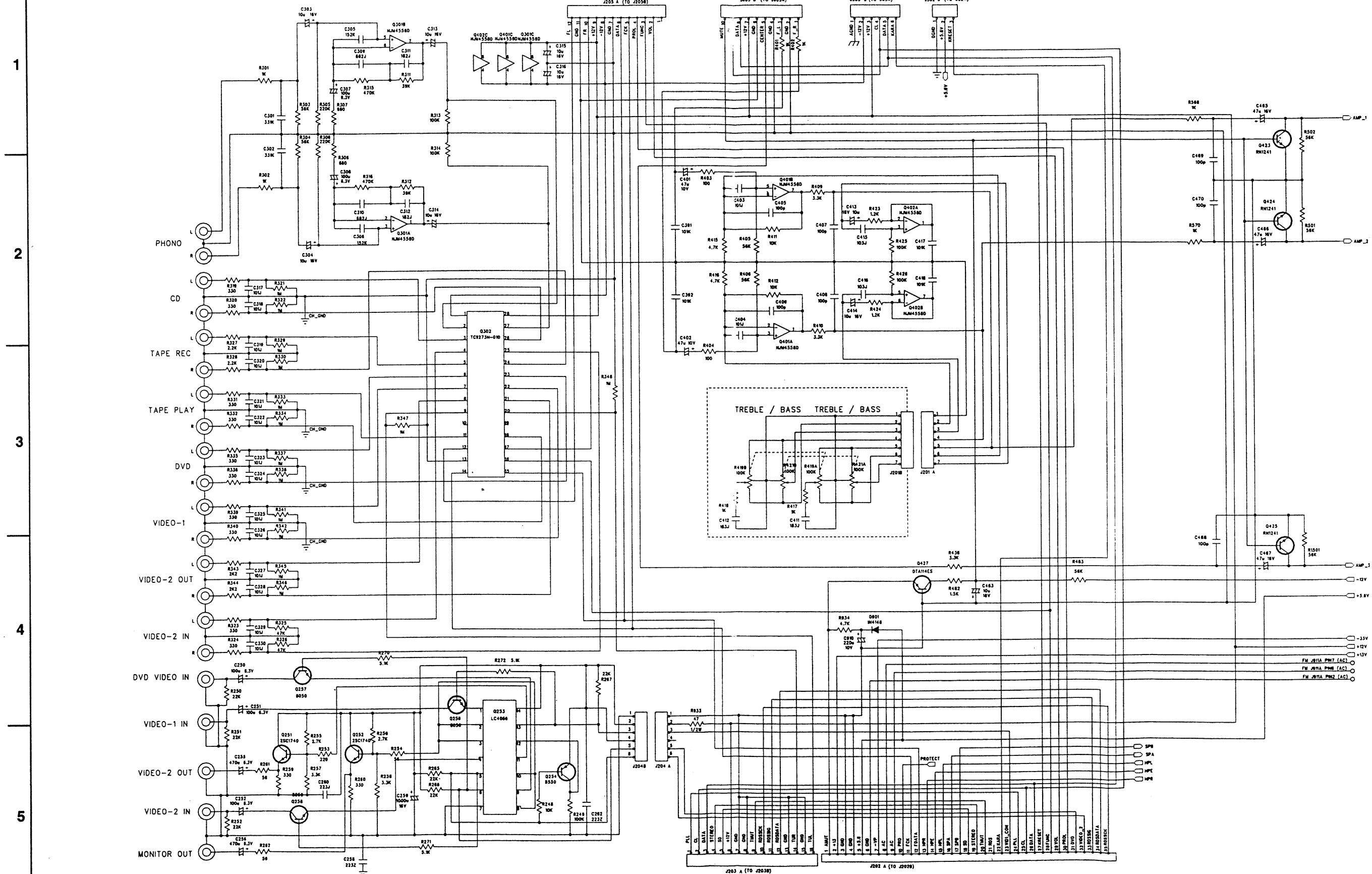
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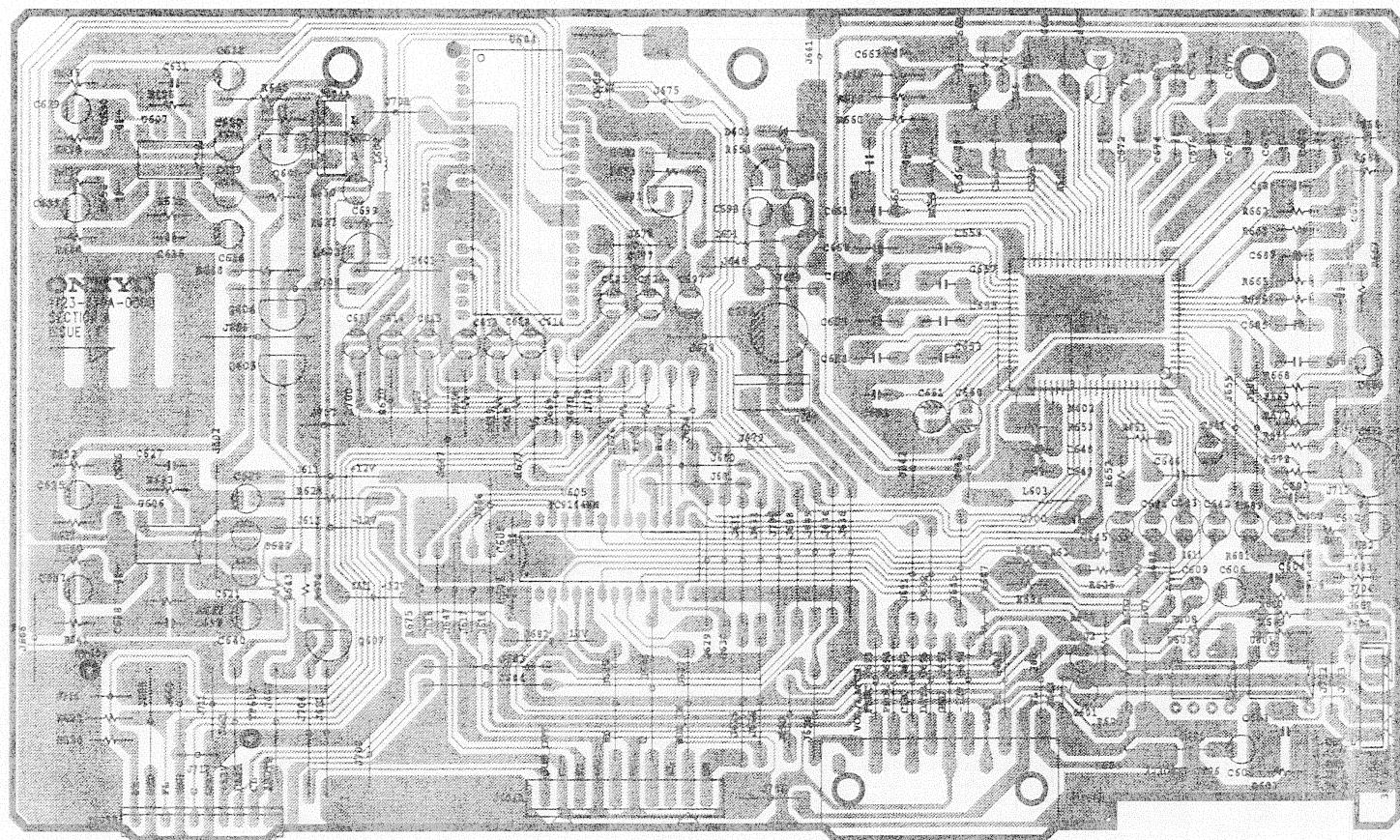
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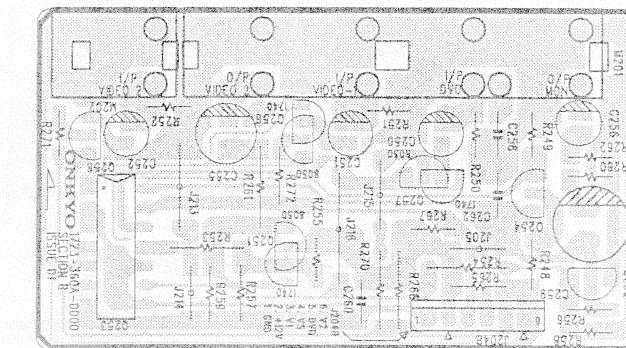
SCHEMATIC DIAGRAM



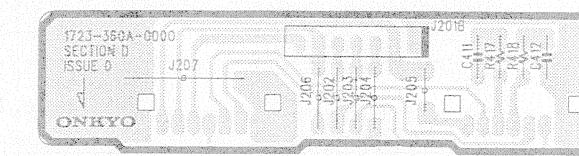
PRINTED CIRCUIT BOARD VIEW FROM COMPONENT SIDE



PROLOGIC PC BOARD



VIDEO PC BOARD



TONE PC BOARD

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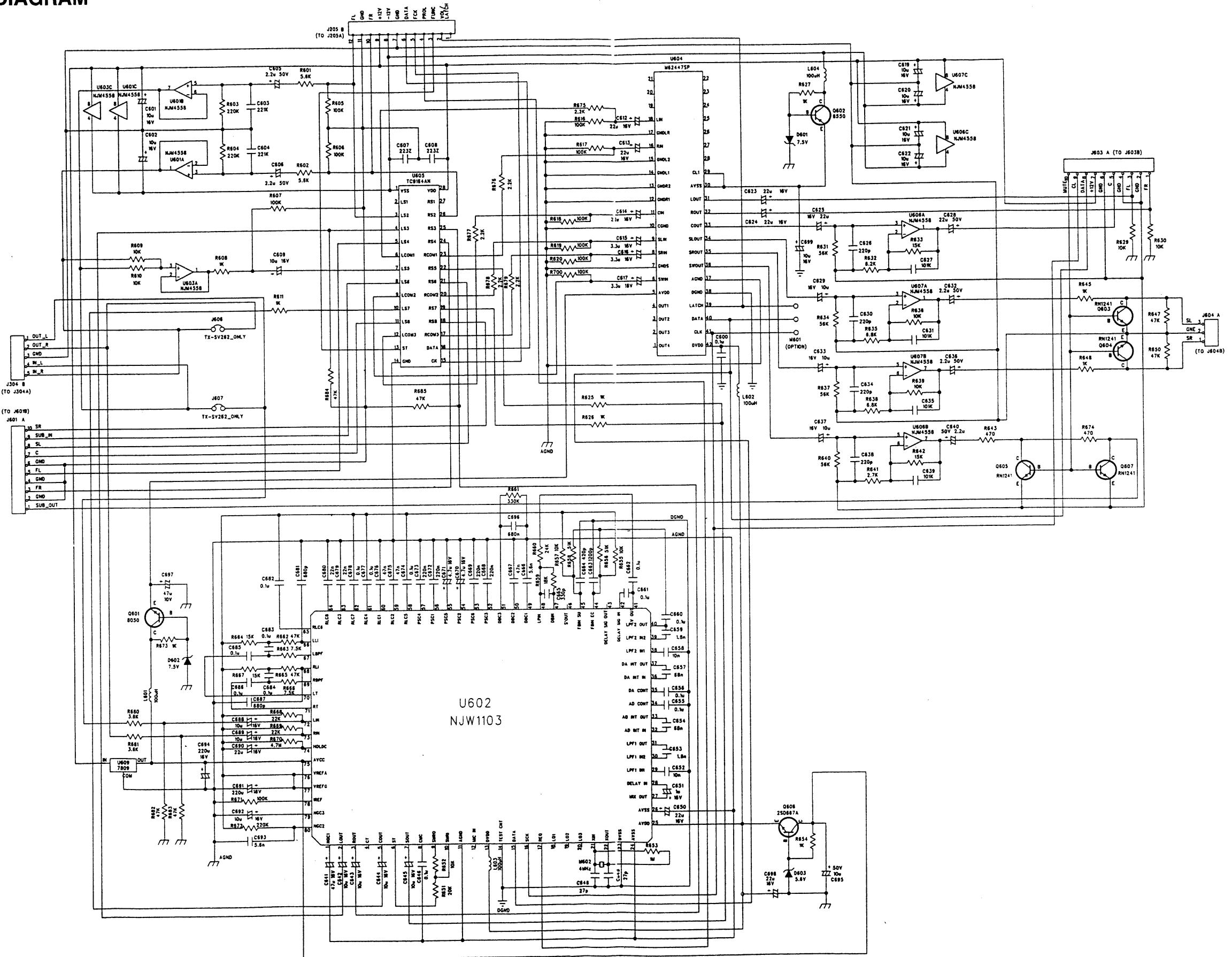
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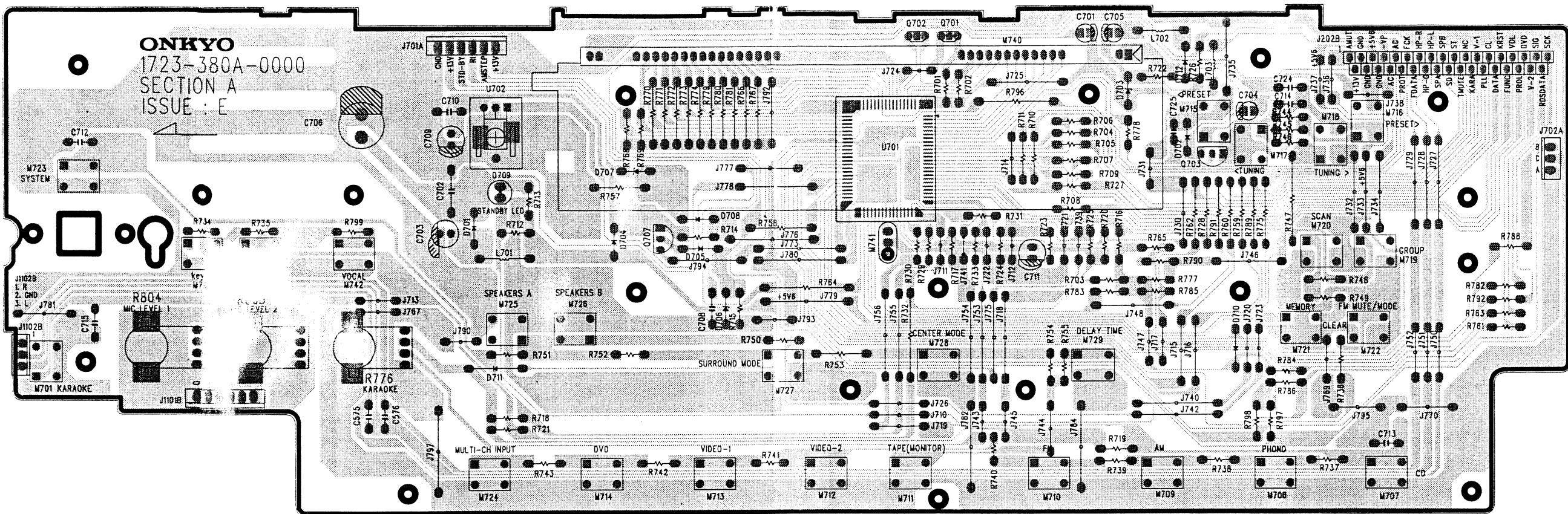
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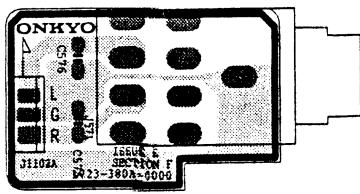
SCHEMATIC DIAGRAM



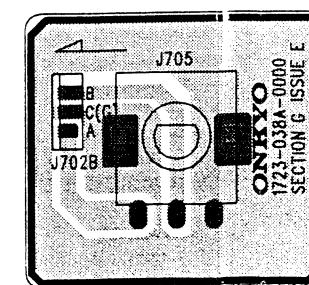
PRINTED CIRCUIT BOARD VIEW FROM COMPONENT SIDE



KEY BOARD PC BOARD



HEADPHONE PC BOARD



ROTARY PC BOARD

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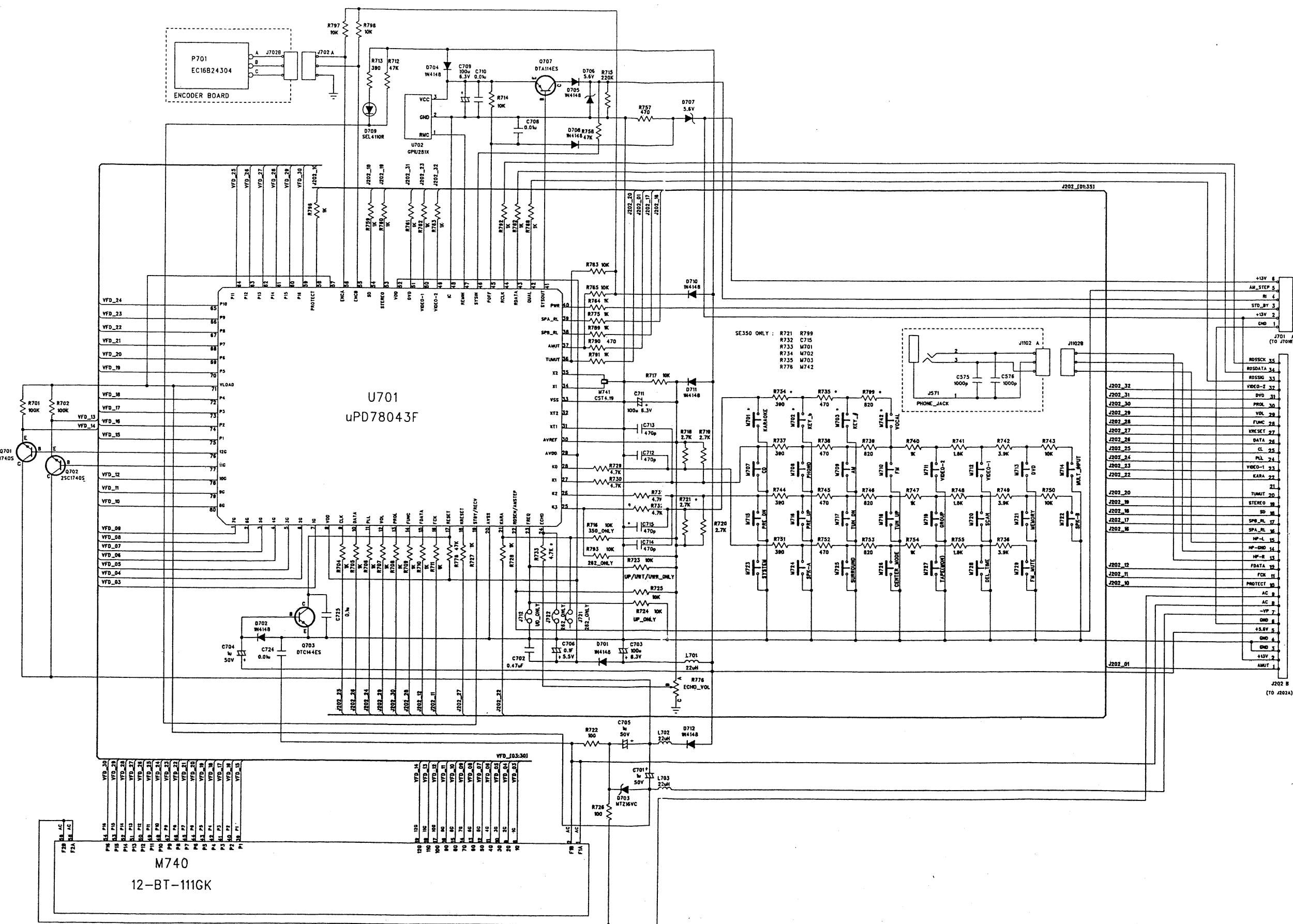
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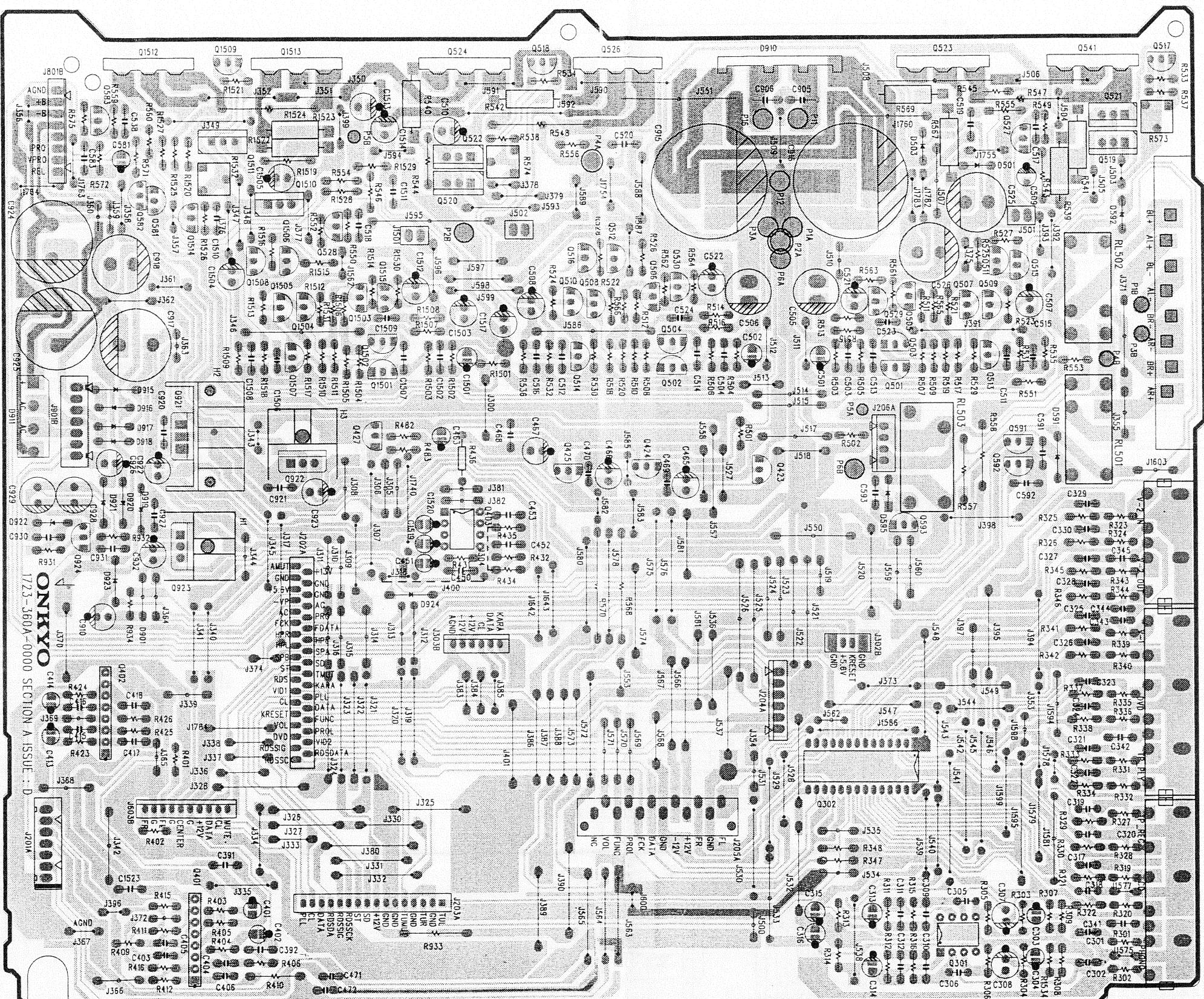
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SCHEMATIC DIAGRAM

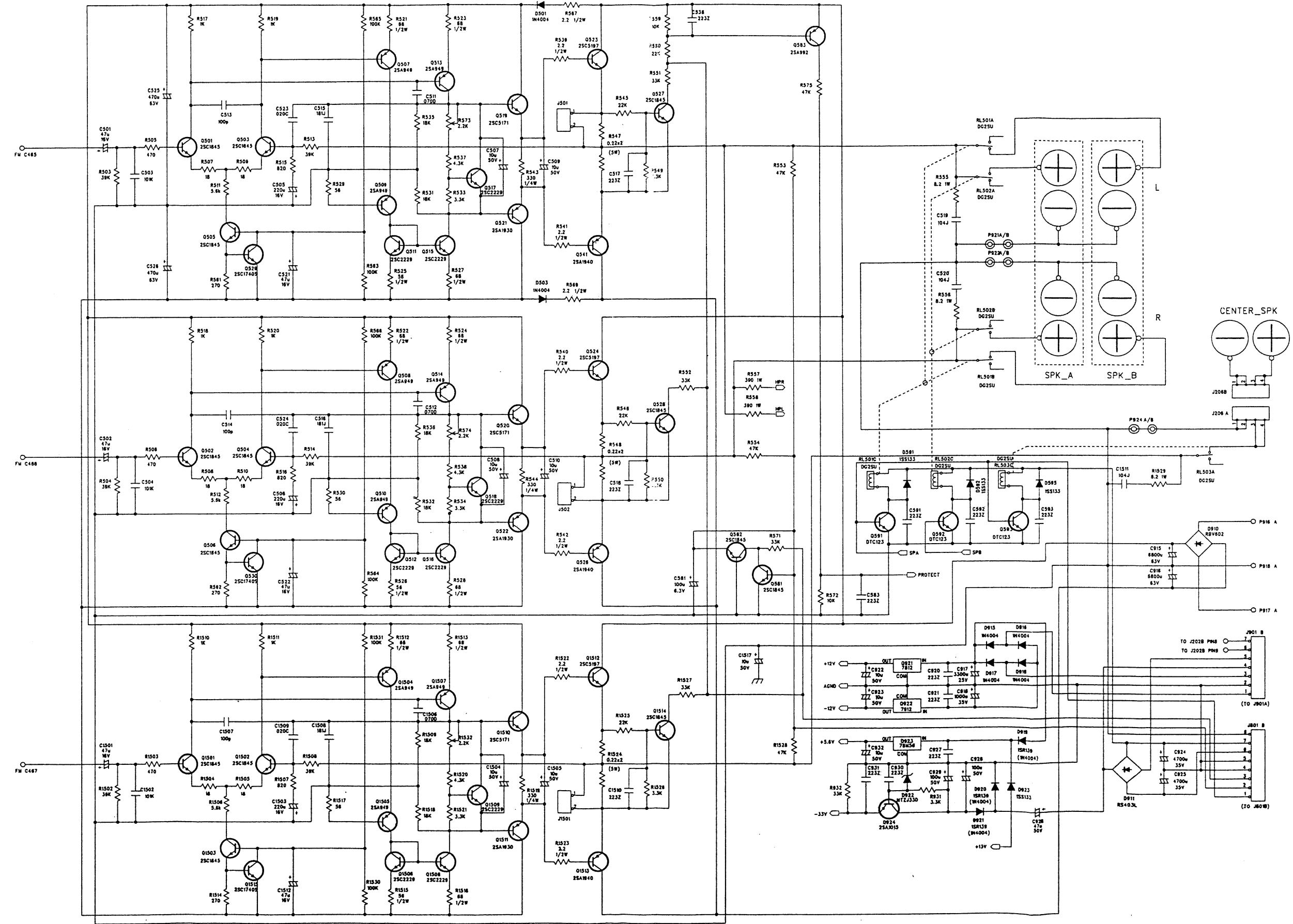


PRINTED CIRCUIT BOARD VIEW FROM COMPONENT SIDE



MAIN PC BOARD

SCHEMATIC DIAGRAM



A

B

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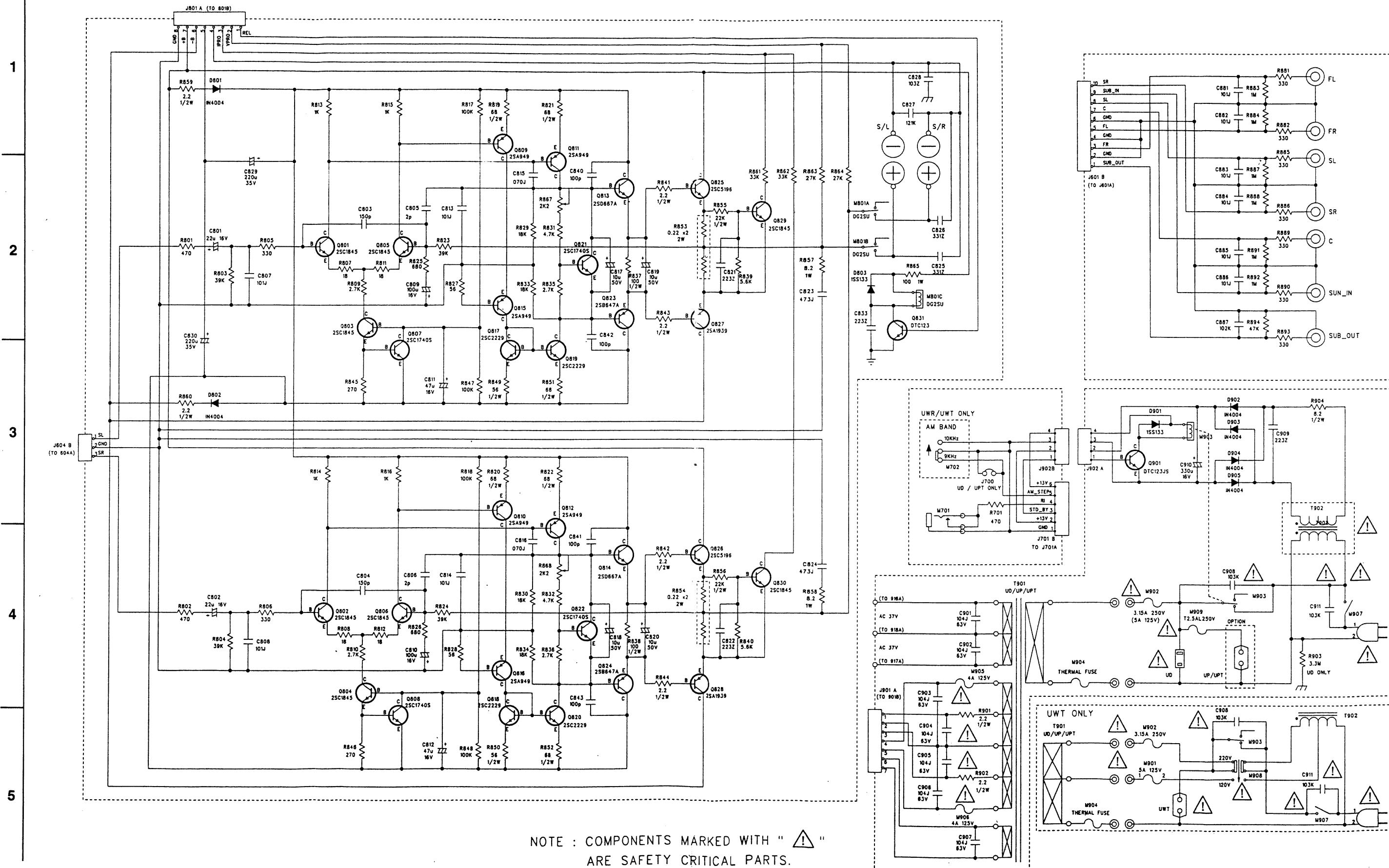
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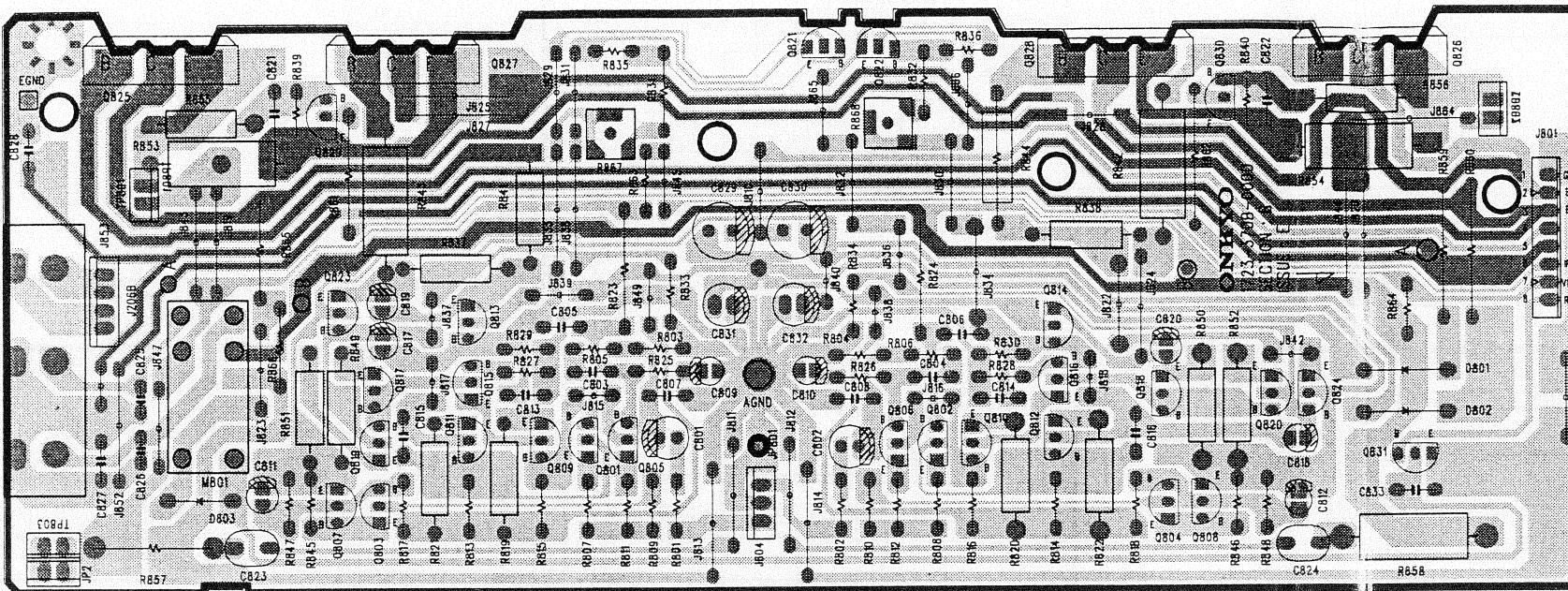
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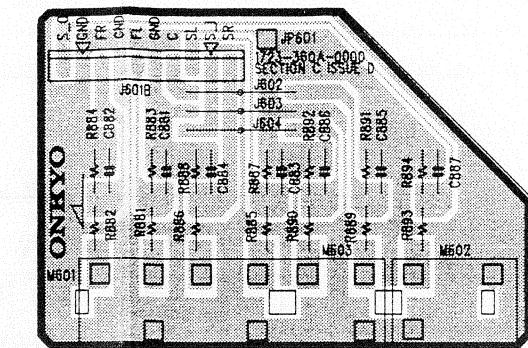
SCHEMATIC DIAGRAM



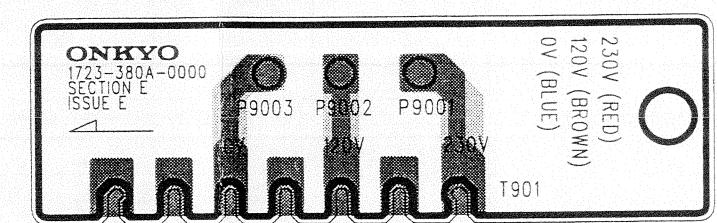
PRINTED CIRCUIT BOARD VIEW FROM COMPONENT SIDE



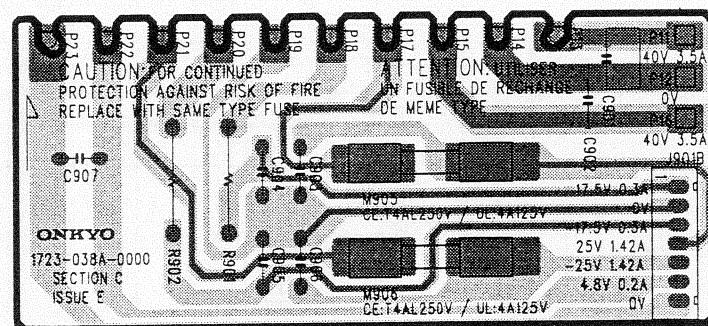
SURROUND PC BOARD



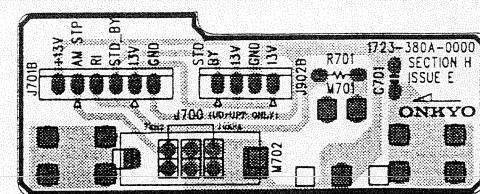
MULTI-CHANNEL PC BOARD



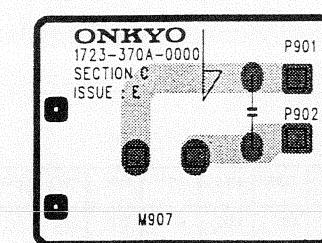
TRANSFORMER TERMINAL PC BOARD



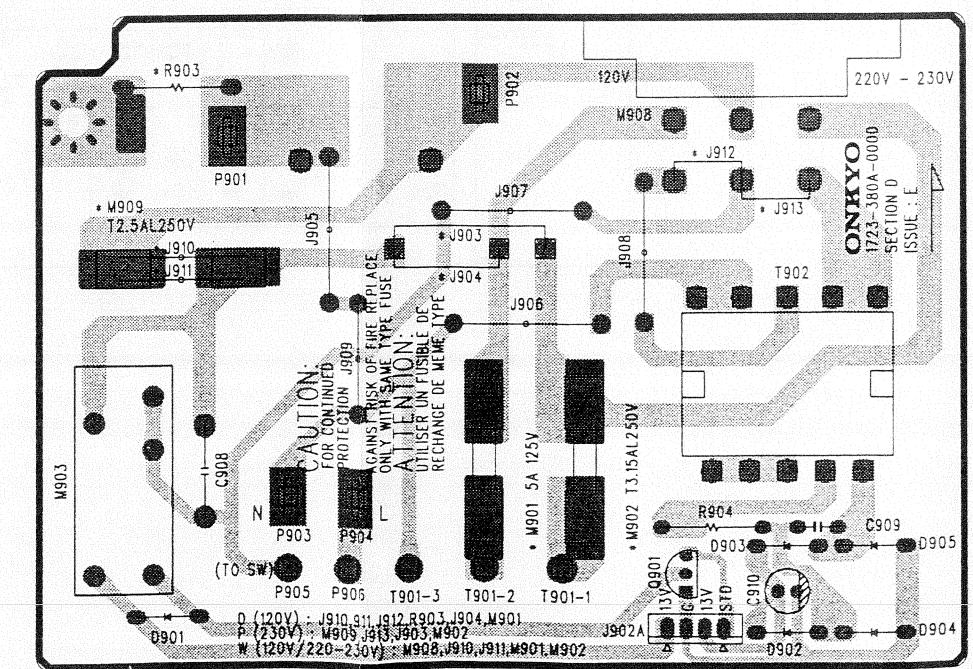
SECONDARY PC BOARD



RI PC BOARD



POWER SWITCH PC BOARD



PRIMARY POWER PC BOARD

A

B

6

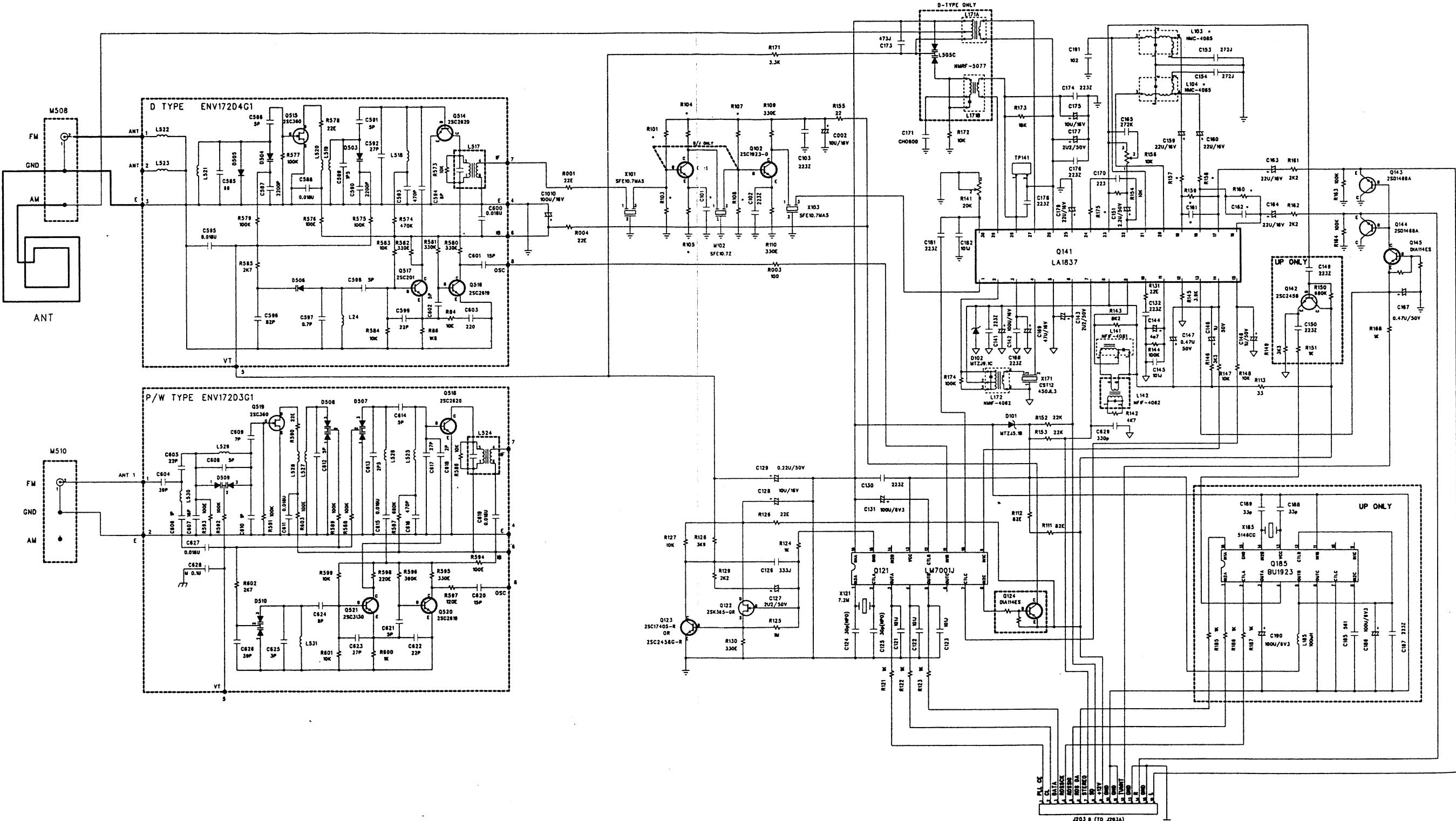
1

1

1

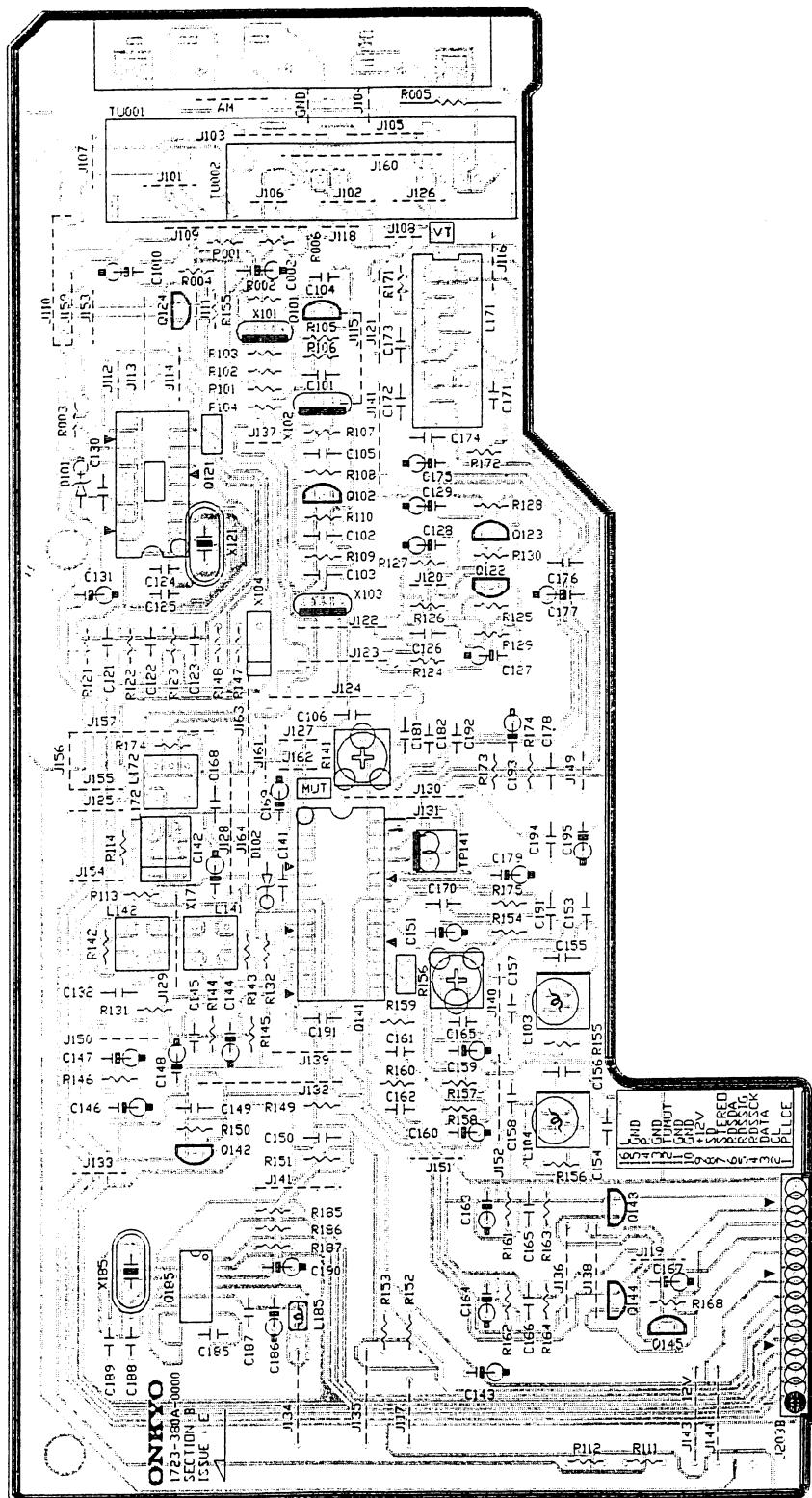
G

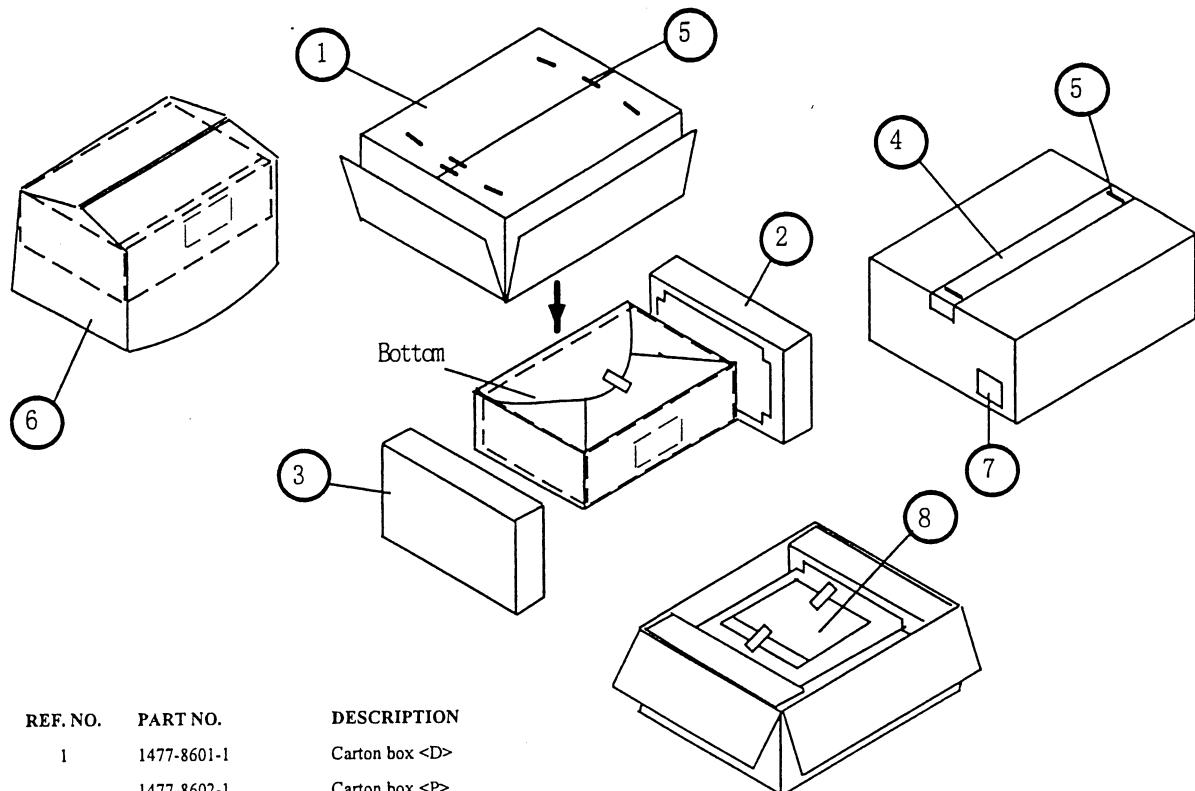
SCHEMATIC DIAGRAM



	R101	R104	R107	R103	R105	R108	R175	R159	R160	C101	C181	C162	Q101	R157	R158	J157	J111
UD	3K3	-	-	1K	-	-	33K	68K	68K	-	332	332	-	3K3	3K3	NO	YES
UP	33K	330	3K3	12K	680	470	56K	330K	330K	223	152	152	2SC945A-P	2K7	2K7	YES	NO
UWT	33K	330	3K3	12K	680	470	56K	330K	330K	223	182	182	2SC945A-P	2K7	2K7	YES	NO

PRINTED CIRCUIT BOARD VIEW FROM COMPONENT SIDE





REF. NO.	PART NO.	DESCRIPTION
1	1477-8601-1	Carton box <D>
	1477-8602-1	Carton box <P>
	1477-8603-1	Carton box <T/W>
2	1490-5023-0	Pad, left
3	1490-5024-0	Pad, right
4	29110071	PP tape
5	282301	Staple
6	1497-1072-4	Polybag, unit
7	3000-5091-0	Label UPC <D>
	3000-5092-0	Label EAN <P/T/W>

REF. NO.	PART NO.	DESCRIPTION
8	1497-1062-0	240X360X0.05, Polybag
	2101-1551-0	Antenna adopter <T>
	2105-3261-0	Conversion plug <T>
	2107-1081-0	Conversion plug <W>
	2113-1155-0	AM loop antenna
	29365019B	Warranty card <D>
	3010054	Battery
	4301-4204-0	Instruction manual E
	4301-4205-0	Instruction manual U3 <P>
	4301-4206-0	Instruction manual U3 <P>
	4301-4207-0	Instruction manual T <T/W>
	7010-1740-0	FM antenna
	8900-1880-0	RC-386S Remote controller

ONKYO CORPORATION

Sales & Product Planning Div. : 2-1, Nisshin-cho, Neyagawa-shi, OSAKA 572-8540, JAPAN
 Tel: 0720-31-8111 Fax: 0720-33-5222

ONKYO U.S.A. CORPORATION
 200 Williams Drive, Ramey, N.J. 07446, U.S.A.
 Tel: 201-825-7950 Fax: 201-825-8150 E-mail: onkyo@onkyousa. com

ONKYO EUROPE ELECTRONICS GmbH
 Industriestrasse 20, 82110 Germering, GERMANY
 Tel : 089 84 93 20 Fax : 089 84 93 226 E-mail: info@onkyo. de

ONKYO CHINA LIMITED
 Units 2102-7, Metroplaza Tower I, 223 Hing Fong Road, Kwai Chung,
 N.T., HONG KONG Tel: 852 2429 3118 Fax: 852 2428 9039